

PCI – 951 Board

User's Manual

Version: 1.01

Kontron Embedded Computers GmbH

0-0096-2834

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Introduction

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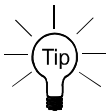
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Symbols used in this Manual

Symbol	Meaning
	This symbol indicates the danger of injury to the user or the risk of damage to the product if the corresponding warning notices are not observed.
	This symbol indicates that the product or parts thereof may be damaged if the corresponding warning notices are not observed.
	This symbol refers to general information on the device and manual.
	This symbol comes before useful information and tips for routine operation.
<i>SYSM</i>	Program names are printed in <i>italics</i> .
<code>format a:</code>	Commands are printed in <i>Courier</i> .

- ® Microsoft, MS-DOS, Windows and Windows NT are registered trademarks of the Microsoft Corporation.
- ® IBM, PC-AT, OS/2 and PS/2 are registered trademarks of the International Business Machines Corporation.
- ® Intel and Pentium are registered trademarks of Intel Corporation.
- ® Award is a registered trademark of Phoenix Technologies, Ltd.

Other product names cited in this manual may also be trademarks and are used here solely for identification purposes.

Important Instructions

This chapter contains safety instructions which must be observed when using your PCI-951 board. The manufacturer's instructions provide useful information on your PCI-951 board.

Note on the Guarantee

Due to their limited service life, parts which by their nature are subject to a particularly high degree of wear (wearing parts) are excluded from the guarantee beyond that provided by law. This applies, for example to the batteries.

Exclusion of Accident Liability Obligation

Kontron Embedded Computers shall be exempted from the statutory accident liability obligation if the user fails to observe the safety instructions.

Liability Limitation / Exemption from the Guarantee Obligation

In the event of damage to the device caused by failure to observe the hints in this manual and eventually on the device (especially the safety instruction), Kontron Embedded Computers shall not be required to honour the guarantee even during the guarantee period and shall be exempted from the statutory accident liability obligation.



Safety Instructions

Please read this section carefully and observe the instructions for your own safety and correct use of the board. Observe the warnings and instructions on the board and in the manual.

The PCI-951 board is built and tested by Kontron Embedded Computers in accordance with IEC / EN60950 and left the works in a perfectly safe condition.

In order to maintain this condition and ensure safe operation, the user must observe the instructions and warnings contained in this manual.

Kontron Embedded Computers can only guarantee the safety, reliability and performance of the board if all of the following safety instructions are observed.

- ☐ The PCI-951 board must be used in accordance with the instructions for use.
- ☐ The PCI-951 board is designed to be built into a system. The integration into the system has to be done such, that the system complies with the IEC / EN 60950 safety rules.
- ☐ In order to install the board into a system, ensure that the system is switched off and the systems power cord is disconnected from the power source. Disconnect all cable connections of peripheral devices from the system.
- ☐ Ensure that the DC operating voltages adheres to the specification given in the "Electrical Specifications".
- ☐ Only devices and components may be connected to the interfaces of the PCI-951 board which fulfil the requirements of a SELV circuit (security low voltage output) in accordance with IEC/EN60950.
- ☐ Please observe, that all cables attached to the PCI-951board must be duly connected and fixed.
- ☐ If extensions are made to the PCI-951 board, the legal stipulations and the board specifications must be observed.

- ☐ It must be assumed that safe operation is no longer possible,
 - if the device has visible damage or
 - if the device no longer functions.In these cases the device must be shut down and secured against unintentional operation.
- ☐ Repairs may only be carried out by a person authorised to do so by Kontron Embedded Computers.

Safety Instruction for the Lithium Battery

The PCI - 951 board is equipped with a lithium battery. The lithium battery should be replaced only in the factory.



Warning

There is a danger of explosion if the wrong type of battery is used for replacement.



Electrostatic Discharge (ESD)

The components on the board are sensitive to static electricity. Care must therefore be exercised at all times during handling and inspection of the PCI-951 board, in order to ensure the product integrity.

- ☐ Do not handle this product while it is outside its protective enclosure, while it is not used for operational purposes, unless it is otherwise anti-static protected.
- ☐ Unpack or install this product only at EOS/ESD safe work stations. When safe work station are not guaranteed, it is important for the user to be electrically discharged before touching the PCI-951 board with his/her hands or tools. This is most easily done by touching a metal part of your system housing.
- ☐ Only hold the assemblies at the edge.
- ☐ Do not touch any connection pins or conductors on the assembly.

Electromagnetic Compatibility

This device was developed for use in industrial applications and for business and commercial areas as well as small companies. The EMC guideline 89/336/EEG in the most recent version or the German EMC law shall apply. Insofar as the user makes alterations or extensions to the device (e.g. installation of extension cards) the preconditions for the CE conformity declaration (protection requirements) may no longer be fulfilled.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Scope of Delivery

Please check that your package is complete, and contains the items below (according to the ordered unit configuration). If you discover damaged or missing items, please contact your dealer.

- ☐ 1x PCI-951 Board PICMG (Full-Size)
- ☐ 1x Safety Instructions
- ☐ 1x IDE Cable Connector (40-pin) for CD-ROM
- ☐ 1x IDE Cable Connector (80-pin) for HDD
- ☐ 1x Cable Connector for 3.5" Floppy Drive
- ☐ 1x Serial Port and 1x Parallel Port Cable Connectors attached to a Mounting Bracket
- ☐ 1x Serial Port Cable attached to a Slot Mounting Bracket
- ☐ 1x USB Cable Connector attached to a Slot Mounting Bracket with double USB-Connector (type A)
- ☐ 1x Audio Slot Bracket
- ☐ 1x Y Cable Mini-DIN PS/2 Keyboard and Mouse
- ☐ 1x ATX Adapter Cable
- ☐ 1x CD-ROM with the required Drivers and the PCI-951 Board User's Manual

Optional Parts

- ☐ DVI Adapter Card with Slot Bracket

Product Identification

The board is labelled at the rear side with the corresponding product identification number.

Label	Product Identification
2-AXXX-XXXX	PCI-951 Board

The "/XXXX/" group defines the ordered board configuration.

Board Description

The PCI-951 single board computer is a multifunctional full-size PICMG CPU card, designed for use in highly integrated platforms for a wide range of application.

The board integrates a Socket 478 Socket for Intel® Pentium® 4 processors. Adopting the Intel® 845GV in combination with 82801DB (ICH4), the board provides a PSB (processor side bus) of 400MHz or 533MHz by a bandwidth of 4.2 Gbytes/s.

The implemented Intel® 845GV chip set provides up to 2GB GDR SDRAM (double DATA rate) memory.

The Intel® 845GV includes a graphic controller that offers 2D- and 3D graphic acceleration and, supports the use of both (VGA) and digitally (DVI) monitors. The onboard AC'97 audio CODEC supports stereo sound function. The Mic-In, Line-Out/Line-In, CD Audio-In connectors are available.

The used 82801DB (ICH4) supports Ultra DMA-100 as well as USB 2.0 and offers thereby more flexibility for the configuration of your system.

Other functions consist of dual 10/100 Base-T(X) Ethernet LAN controller (Option: Intel® 82540EM 10/100/1000 Base-T(X) Gigabit Ethernet LAN controller), one 32-bit expansion MiniPCI socket, Watchdog function and IrDA-communication are available.



Fig. 1: PCI - 951 Board



Fig. 2: PCI - 951 Board slot bracket with interfaces

Features

Processor Socket: Intel® Socket 478.

Processor: Intel® Pentium® 4 and / or Celeron® CPU.

The CPU temperature is monitored via an I²C sensor.



The Intel® Pentium® 4 uses a supply voltage (Vcore), which is generated from the 12V. It requires the extra 4-pin power header from the PSU in order to function. (See *Fig. 4: PCI - 951 Jumpers and connectors location*)

Processor Side Bus Speed (FSB): 400 / 533MHz

Chipset: Intel® 845GV with Intel® 82801DB (ICH4) Chipset

Memory:

- ☐ Two 184-pin non-ECC DDR DIMMs, single-sided and/ or double-sided up to 2GB as DDR200, DDR266 or DDR333.

BIOS: Award BIOS.

- ☐ The BIOS provides “Plug & Play” feature, which detects the PnP-compatible peripheral devices and expansion cards automatically.
- ☐ ACPI Power management

DMI BIOS Support:

- ☐ Desktop Management Interface (DMI) allows users to download system hardware-level information such as CPU type, CPU speed, frequencies and memory size.

LPC I/O: Winbond W83627HF

PCI to ISA Bridge: ITE IT8888F

Parallel Port: One high-speed parallel port, that supports SPP/EPP/ECP mode.

Serial Port: Two 16550 UART compatible ports with:

- ☐ COM1 configurable as RS-232 and
- ☐ COM2 configurable as RS-232 / RS-422 / RS-485 (selectable by jumper setting).

Enhanced IDE: Support two Bus Mastering IDE mode, up to 4 devices. Two IDE interfaces for up to four devices, support PIO Modes up to 5 or Ultra DMA 33/66/100 IDE Hard Disk and ATAPI CD-ROM.

FDD Interface: supports two floppy drives (1.44MB, 2.88MB)

USB Interface: Two USB pin-header connectors (support 4 interfaces, compliant with USB Specification Rev. 2.0)

Audio: AC'97 2.0 (AD1881A) CODEC compatible with stereo sound function, which contained Mic-In, Audio Line-In / Line-Out.

Watchdog Timer: programmable ca. 1 to 256 sec.

PICMG Compliance: Fully compliant to PICMG 1.0 standards

VGA: Embedded Intel® 845GV with integrated VGA controller

- ☐ Simultaneous CRT display (VGA and DVI)
- ☐ 64-bits memory bus in 2/4/8/16/32 MB DDR SDRAM
- ☐ LCD panel that supports DVI
- ☐ CRT resolution: 1920x 1440 at 85 Hz
- ☐ resolution for digital flat panels: Up to 1280x 1024 at 60 Hz
- ☐ It support fast 2D and 3D graphics performance; enhance 3D feature set; Improves platforms for DVD and Video playback and Enhance Multimedia functionally

Ethernet: Intel® 82562ET / 82801DB

- ☐ The Intel® 82801DB ICH4 supports LAN functions for fast Ethernet (10/100 Mbit/s). In combination with Intel® 82562ET supports 10/100 Base-T connection.
- ☐ The Intel® 82551QM provides a standard IEEE 802.3 Ethernet interface for 10/100 Base-TX applications (802.3, 802.3u, 802.3ab).

Keyboard and Mouse Connectors:

- ☐ Combined PS/2 keyboard and mouse connector on the board slot bracket.
- ☐ On board 7-pin header connector that supports an external keyboard and mouse connector.

IrDA Interface: Pin-header connector that allows to connect an external IrDA module.

CompactFlash™ Socket (IDE compatible): allows the operation with a CompactFlash™ Card (Type I, II).

MiniPCI Socket: allows the extension with a MiniPCI card.

Extended Functions

- ❑ **Temperature Monitoring and Alert:** The internal CPU temperature is monitored via an I²C sensor. When the temperature exceeds the safe heat level an acoustical signal alerts the user or the system can be shut down.
- ❑ **ATX-Power Control:** Provides functions such as switching off by shutdown of the operating system or Wake UP on LAN
- ❑ **Modem Ring-On:** Allows the system to be waked up through an external modem. The system must be connected to the power source and the power switch must be in On position.
- ❑ **Wake On LAN:** Allows the system to be waked up by the network. The system must be connected to the power source and the power switch must be in On position. Wake On LAN functions properly only with an ATX power supply.

Functional Diagram

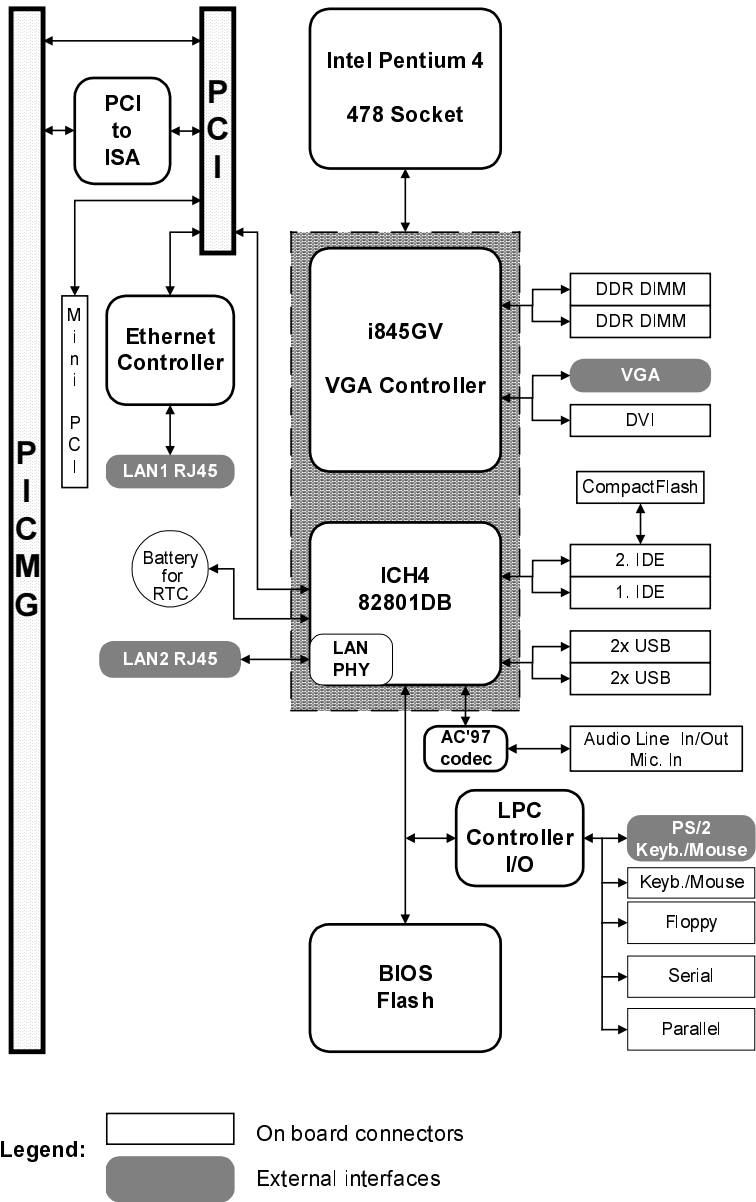


Fig. 3: PCI - 951 Functional diagram

Configurations

This chapter provides information on how to use the jumpers and connectors located on the PCI-951 in order to set up a workable system.

CPU Installation

The PCI-951 provides a 478-pin socket for Intel® Pentium® 4 or Celeron® processors with mPGA form factor.

To install the CPU, insert it to the socket by aligning the notch of the CPU with the one of the mPGA socket. For the CPU fan installation, refer to the installation procedures of the fan manufacturer.



Due to mechanical incompatibility of the fan, we recommend not to install the heat sink supplied with the boxed Intel® Pentium® 4 processor.



Ensure that the contact between the CPU heat sink and the CPU top surface is proper, in order to avoid CPU overheating problem, that would cause your system to hang or be unstable.

Memory Installation

The PCI-951 board supports two 184-pin DDR SDRAM sockets for a maximum total memory of 2GB DDR SDRAMs. The memory modules can be installed in size of 128MB, 256MB, 512MB and 1GB.

To populate the DDR SDRAM sockets, any of the socket can be populated first.



Use SDRAM of memory modules with PC2100 or PC2700 specification. Our suggest: you should not install the memory modules with PC1600 specification, for availability and cost reasons.

Refer to the table bellow to configure the memory:

DDR DIMM1	DDR DIMM2	Total Memory
128MB	-----	128MB
256MB	-----	256MB
512MB	-----	512MB
1GB	-----	1GB
128MB	128MB	256MB
128MB	256MB	384MB
128MB	512MB	640MB
256MB	128MB	384MB
256MB	256MB	512MB
256MB	512MB	768MB
256MB	1GB	1280MB
512MB	128MB	640MB
512MB	256MB	768MB
512MB	512MB	1GB
512MB	1GB	1536MB
1GB	1GB	2GB


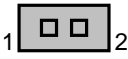
Jumpers on the PCI-951

The jumpers on the PCI-951 allow you to configure your CPU card according to the needs of your applications.



In order to change a jumper setting, turn off the computer by use of the ATX-power supply switch. Otherwise, the board could be damaged.

The following examples show the conventions used in this section.

 A diagram of a two-pin jumper. Two small squares represent the pins, labeled '1' on the left and '2' on the right. There is no bridge between them, indicating the jumper is open.	Jumper Open
 A diagram of a two-pin jumper. Two small squares represent the pins, labeled '1' on the left and '2' on the right. A solid black bridge connects the two pins, indicating the jumper is closed.	Jumper Closed

Jumpers Location on the PCI-951

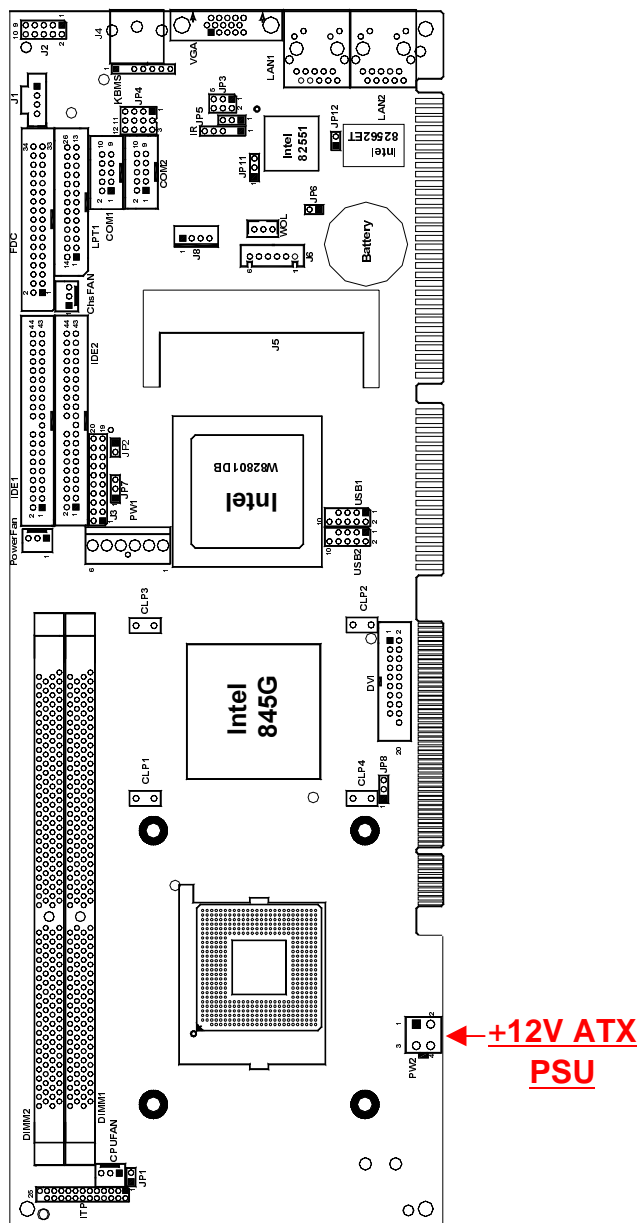




Fig. 4: PCI - 951 Jumpers and connectors location

JP2: CompactFlash™ Card, Master/Slave Select

This jumper is used to select if the CompactFlash™ is master or slave device to the secondary IDE.

JP2: Pin Header; DIP 2-pin	Setting	Function
	Pin 1-2 Closed	Mastered
	Pin 1-2 Open	Slave (Default)









While using CompactFlash™-cards, only one device could be used on secondary IDE.

JP3, JP4: RS232/422/485 (COM1, 2) Selection

COM1 is configured as RS-232 only.



COM2 is selectable for RS232, RS-422 and RS-485 configuration. The following table describes the jumper settings to configure the COM2 interface.

COM2 Function	RS-232	RS-422	RS-485
JP3: Pin Header; DIP 6-pin	<div>6 5</div>  <div>2 1</div>	<div>6 5</div>  <div>2 1</div>	<div>6 5</div>  <div>2 1</div>
JP4 : Pin Header; DIP 12-pin Jumper Setting (pin closed)	<div>11-10</div> <div>8-7</div> <div>5-4</div> <div>2-1</div>  <div>3-2-1</div>	<div>12-11</div> <div>9-8</div> <div>6-5</div> <div>3-2</div>  <div>3-2-1</div>	<div>12-11</div> <div>9-8</div> <div>6-5</div> <div>3-2</div>  <div>3-2-1</div>



**RS485 Mode:**

The (RTS-) signal is used to activate the transmitter.

JP5: LAN1 Function

JP5: Pin Header; DIP 3-pin	Setting	Function
	Pin 1-2 (Short/Closed)	<i>Enable</i> (Default)
	Pin 2-3 (Short/Closed)	<i>Disable</i>



JP7: Clear CMOS Content

JP7: Pin Header; DIP 3-pin	Setting	Function
	Pin 2-3 Closed	Clear CMOS Content
	Pin 1-2 Short/Closed	Normal Operation (Default)





For clearing of content, please wait 10 sec.

JP11: ON/OFF Button Configuration

JP11: Pin Header; DIP 3-pin	Setting	Function
	Pin 1-2 Short/Closed	The ON/OFF-button switches the system ON or OFF, (ATX Power Mode).
	Pin 2-3 Closed	The function of the ON/OFF-button is ignored. System behaviour: like an AT-system.

JP12: LAN2 Function

JP12: Pin Header; DIP 2-pin	Setting	Function
	Pin 1-2 Short/Closed	<i>Enable</i> (Default)
	Pin 1-2 Open	<i>Disable</i>

Connectors on the PCI-951

The connectors on the PCI-951 allow you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on PCI-951 and their respective functions.

External interfaces	
LAN1, LAN2	RJ45 Connectors
VGA	VGA Connector
J4	Combined PS/2 Keyboard and Mouse Connector
On board connectors	
J1	CD-Audio-In Connector
J2	Audio Connector
J3	Multifunctional Connector
J5	MiniPCI Socket
J6	External ATX Power Control Connector (+5VSB, PS_ON)
J8	Negative Voltages Power Connector (–5V, –12V)
KBMS	Keyboard/ Mouse External Connector
USB1	USB Header (Port 1, 2) Connectors
USB2	USB Header (Port 3, 4) Connectors
DVI	Connector for DVI Extension
IDE1, IDE2	IDE Connectors
FDC	Floppy Drive BOX Header Connector
PW1	Positive Voltage Power Connector (+3,3V, +5V)
PW2	ATX +12V Power Connector
IR	IrDA Connector
WOL	Wake On LAN Connector
LPT1	Parallel Port Connector
COM1, COM2	Serial Ports
CPU Fan	CPU Fan Power Connector
CHS Fan	Chassis Fan Power Connector
PWR Fan	Chassis Fan Power Connector
CF	CompactFlash™ Disk Connector (rear side)

External Interfaces

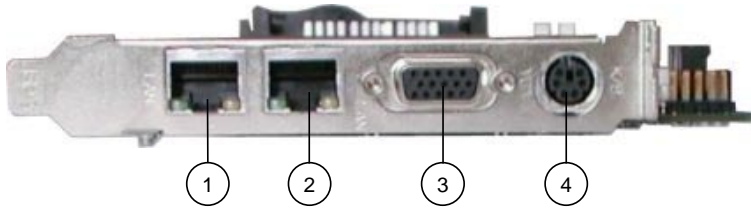



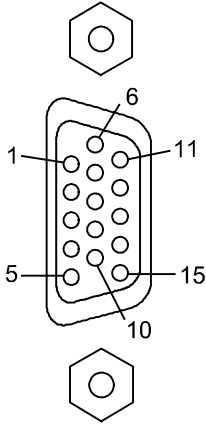
Fig. 5: PCI-951 – User interface

- 1 LAN2 connector
- 2 LAN1 connector
- 3 VGA connector
- 4 PS/2 keyboard and mouse connector

LAN1, LAN2 Ethernet Connectors

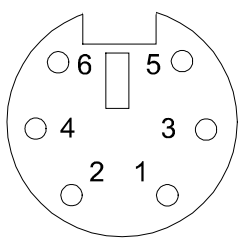
PIN#	LAN1 or LAN2 10/100 Signal Name	Only LAN1 10/100/1000 (Option:82540EM) Signal Name	RJ45 (female)
1	TX+	MDI0+	
2	TX-	MDI0-	
3	RX+	MDI1+	
4	NC	MDI2+	
5	NC	MDI2-	
6	RX-	MDI1-	
7	NC	MDI3+	
8	NC	MDI3-	
LEFT LED	LINK / ACTIVE	LINK / ACTIVE	
RIGHT LED	100/10	1000/100	

VGA-Interface - Connector

Pin	Signal name	15-pin D-SUB socket (female)
1	red	
2	green	
3	blue	
4	pulled to VCC	
5, 6, 7, 8, 10	GND	
9	+5 V fused *	
11	pulled to VCC	
12	DDC-SDA *	
13	HSYNC	
14	VSYNC	
15	DDC-SCL *	


* used for DDC

PS/2 Keyboard and Mouse - Connector

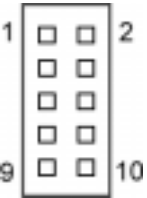
Pin	Signal name	6 pin Mini-DIN socket (female)
1	Keyboard data	
2	Mouse data	
3	GND	
4	+5 V fused	
5	Keyboard clock	
6	Mouse clock	

On Board Connectors

J1: CD-Audio-In Connector

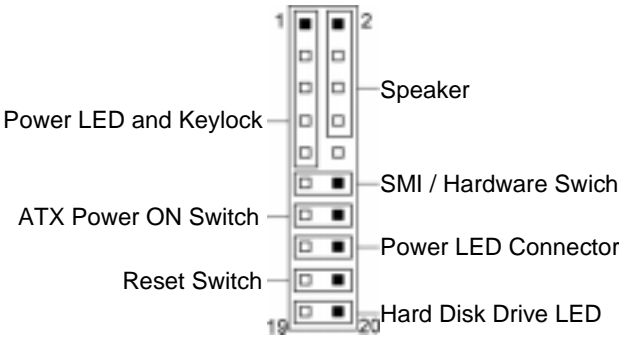
J1: MINI Base; DIP 4-pin	Pin #	Signal Name
 <p>4 3 2 1</p>	1	Left
	2	GND
	3	GND
	4	Right

J2: Audio Connector

J2: Pin Header; DIP 10-pin	Signal Name	Pin #	Pin #	Signal Name
	LineOut-R	1	2	LineOut-L
	GND	3	4	GND
	LineIn-R	5	6	LineIn-L
	GND	7	8	GND
	Mic-In	9	10	VREF

J3: Multifunctional Connector

A system chassis can be equipped with components, that provide acoustical or/and light indication of the computer activities, and switches to change the computer status. J3 is a 20-pin header that provides following connections.



Speaker: Pins 2, 4, 6, 8

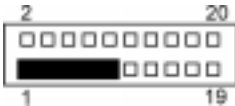
This connector provides an interface to connect a speaker for audio tone generation. An 8-ohm speaker is recommended.



Pin #	Signal Name
2	Speaker out
4	NC
6	VCC
8	GND

Power LED and Keylock: Pins 1, 3, 5, 7, 9

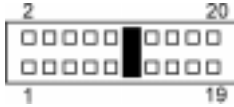
The power LED shows, that your system is ready for use. If the keylock is active, no keyboard entry is possible.



Pin #	Signal Name
1	Power LED
3	NC
5	GND
7	Keylock
9	GND

SMI/Hardware Switch: Pins 11 and 12

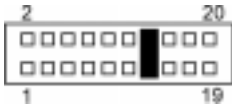
This interface supports the "Green switch" of a system. If the switch is pressed, the system will be switched into the power-saving mode immediately (in a forced manner).



Pin #	Signal Name
12	Ext. SMI (depending on BIOS settings)
11	GND

Power Button: Pins 14 and 13

This 2-pin connector allows to connect an "ATX Power Supply On/Off Button". When pressing this button, the system will be powered on. When pressing again, the system will be powered off, or will be put into a power-saving mode, depending on the BIOS settings.



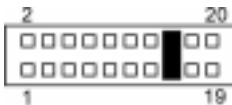
Pin #	Signal Name
14	PWRBTN
13	Pulled up to VSB



It is supported only if the ATX function and a corresponding power supply is used.

Alternative Connector for Power LED: Pins 15 and 16

These pins can be used as an alternative port for a power LED.



Pin #	Signal Name
16	Power LED
15	GND

Reset Switch: Pins 17 and 18

The reset switch allows to restart the system without turning the main power switch off and then on again.



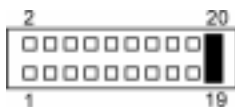
Pin #	Signal Name
18	Reset
17	GND



Depending on the software and operating system, some data may be lost.

Hard Disk Drive LED Connector: Pins 19 and 20

This connector allows to connect a hard drive activity LED. This LED will flash when the HDD is being accessed.



Pin #	Signal Name
20	HDD-LED
19	Pulled up to VCC

J4: PS/2 Keyboard and PS/2 Mouse Connectors

See chapter “External Interfaces”.

J5: MiniPCI Socket


The pin assignments of the J5 MiniPCI Socket are as follows:

SMD PCI Slot, 124-pin, Pin Assignments					
Pin Name		Pin Name		Pin Name	
1	X	51	AD21	101	GND
2	X	52	AD22	102	GND
3	X	53	AD19	103	X
4	X	54	AD20	104	X
5	X	55	GND	105	X
6	X	56	PAR	106	X
7	X	57	AD17	107	X
8	X	58	AD18	108	X
9	X	59	-CEB2	109	X
10	X	60	AD16	110	X
11	X	61	-IRDY	111	X
12	X	62	GND	112	X
13	X	63	VCC3	113	X
14	X	64	-FRAME	114	GND
15	X	65	-CLKRUN	115	X
16	X	66	-TRDY	116	X
17	-INTB	67	-SERR	117	X
18	VCC	68	-STOP	118	X
19	VCC3	69	GND	119	X
20	-INTA	70	VCC3	120	X
21	X	71	-PERR	121	X
22	X	72	-DEVSEL	122	-MPCIACT
23	GND	73	-CBE1	123	X
24	V3.3Aux	74	GND	124	3.3VAUX
25	CLK	75	AD14		
26	-RST	76	AD15		
27	GND	77	GND		
28	VCC3	78	AD13		
29	-REQ	79	AD12		
30	-GNT	80	AD11		
31	VCC3	81	AD10		
32	GND	82	GND		


The table continued on the following page.

33	AD31	83	GND		
34	-PME	84	AD9		
35	AD29	85	AD8		
36	X	86	-CBE0		
37	GND	87	AD7		
38	AD30	88	ACC3		
39	AD27	89	ACC3		
40	VCC3	90	AD6		
41	AD25	91	AD5		
42	AD28	92	AD4		
43	RESV	93	X		
44	AD26	94	AD2		
45	-CBE3	95	AD3		
46	AD24	96	AD0		
47	AD23	97	VCC		
48	IDSEL	98	X		
49	GND	99	AD1		
50	GND	100	R-WIP		


J6: External ATX Power Control Connector

J6: Boxheader, (shrouded), DIP 6-pin	Pin #	Signal Name
	1	PWRBTN
	2	GND
	3	PWRBTN
	4	GND
	5	PS-ON (soft on/off)
	6	5V SB (standby +5V)

J8: Negative Voltages Power Connector (-5V, -12V)


J8: MINI Base DIP 4-pin	Pin #	Signal Name
	1	GND
	2	-5V
	3	GND
	4	-12V

KBMS: Keyboard / Mouse External Connector

KBMS: Pin Header; DIP 7-pin	Pin #	Signal Name
 KBMS	1	KB DAT
	2	KEY
	3	MS DAT
	4	GND
	5	VCC fused
	6	KB-CLK
	7	MS-CLK


USB1 and USB2:

USB1 Header (Port 1, 2): the onboard USB1 pin-header supports two ports (Port 1 and Port 2).

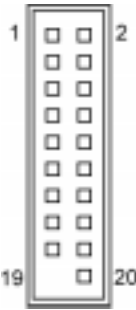
USB1: Pin Header; DIP 10-pin	USB1: Port 1		USB1: Port 2	
	Pin #	Signal Name	Pin #	Signal Name
	1	VCC fused	2	VCC fused
	3	D1-	4	D2-
	5	D1+	6	D2+
	7	GND	8	GND
	9	Key	10	NC

USB2: USB Header (Port 2, 4)


USB2 Header (Port 3, 4): the onboard USB2 pin-header supports two ports (Port 3 and Port 4).

USB2: Pin Header; DIP 10-pin	USB2: Port 3		USB2: Port 4	
	Pin #	Signal Name	Pin #	Signal Name
	1	VCC fused	2	VCC fused
	3	D3-	4	D4-
	5	D3+	6	D4+
	7	GND	8	GND
	9	Key	10	NC

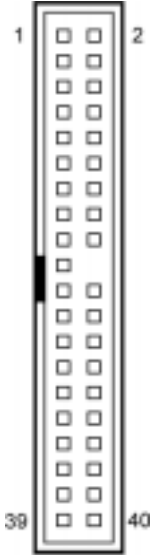
DVI: Connector for DVI Extension

DVI: Pin Header; DIP 20-pin	Signal Name	Pin #	Pin #	Signal Name
 <p style="text-align: center;">DVI</p>	T.M.D.S Data 1+	1	2	T.M.D.S Data 2+
	T.M.D.S Data 1-	3	4	T.M.D.S Data 2-
	GND	5	6	GND
	GND	7	8	GND
	T.M.D.S CLK+	9	10	T.M.D.S Data 0+
	T.M.D.S CLK-	11	12	T.M.D.S Data 0-
	GND	13	14	GND
	Power (fused)	15	16	Hot Plug Detect
	GND	17	18	DDC DATA
	KEY	19	20	DDC CLK

IDE1: Primary IDE Connector

IDE1: Boxheader, (shrouded), DIP 40-pin	Signal Name	Pin #	Pin #	Signal Name
	Reset IDE	1	2	GND
	Host data 7	3	4	Host data 8
	Host data 6	5	6	Host data 9
	Host data 5	7	8	Host data 10
	Host data 4	9	10	Host data 11
	Host data 3	11	12	Host data 12
	Host data 2	13	14	Host data 13
	Host data 1	15	16	Host data 14
	Host data 0	17	18	Host data 15
	GND	19	20	Key
	DRQ0	21	22	GND
	Host IOW	23	24	GND
	Host IOR	25	26	GND
	IOCHRDY	27	28	GND permanent
	DACK0	29	30	GND
	IRQ14	31	32	NC
	Address 1	33	34	80 pos. Cable detection
	Address 0	35	36	Address 2
	Chip select 0	37	38	Chip select 1
	Activity	39	40	GND

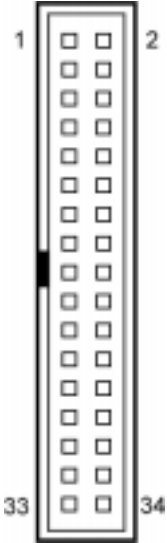
IDE2: Secondary IDE Connector

IDE2: Boxheader, (shrouded), DIP 40-pin	Signal Name	Pin #	Pin #	Signal Name
	Reset IDE	1	2	GND
	Host data 7	3	4	Host data 8
	Host data 6	5	6	Host data 9
	Host data 5	7	8	Host data 10
	Host data 4	9	10	Host data 11
	Host data 3	11	12	Host data 12
	Host data 2	13	14	Host data 13
	Host data 1	15	16	Host data 14
	Host data 0	17	18	Host data 15
	GND	19	20	Key
	DRQ0	21	22	GND
	Host IOW	23	24	GND
	Host IOR	25	26	GND
	IOCHRDY	27	28	GND permanent
	DACK0	29	30	GND
	IRQ14	31	32	NC
	Address 1	33	34	80 pos. Cable detection
	Address 0	35	36	Address 2
	Chip select 0	37	38	Chip select 1
	Activity	39	40	GND


LAN1, LAN2: RJ45 Connectors

LAN1, LAN2: These connections support Ethernet data transfer of 10/100 Mbps. The port LAN1 offers optionally also 10/100/1000 Mbps. See chapter “External Interfaces”.

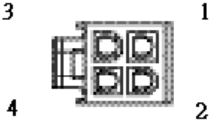
FDC: Floppy Drive Boxheader Connector

FDC: Boxheader, (shrouded), DIP 34-pin		Signal Name	Pin #	Pin #	Signal Name
 <p>FDC</p>		GND	1	2	RM/LC
		GND	3	4	NC
		GND	5	6	NC
		GND	7	8	Index
		GND	9	10	Motor enable 0
		GND	11	12	Drive select 1
		GND	13	14	Drive select 0
		GND	15	16	Motor enable 1
		GND	17	18	Direction
		GND	19	20	Step
		GND	21	22	Write data
		GND	23	24	Write gate
		GND	25	26	Track 00
		GND	27	28	Write protect
		NC	29	30	Read data
		GND	31	32	Side 1 select
		NC	33	34	Diskette change

PW1: Positive Voltage Power Connector (+3.3V, +5V)

PW1: Connector, P/B, 6P-M 180D	Pin #	Signal Name
	1	GND
	2	GND
	3	GND
	4	+3.3V
	5	+3.3V
	6	+5V

PW2: ATX +12V Power Connector

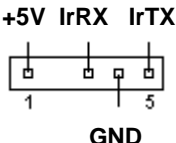
PW2: Connector, 4-pin-	Pin #	Signal Name
	1	GND
	2	GND
	3	+12V
	4	+12V

IR: IrDA Connector

This connector supports the IrDA interface for wireless communication.



If wireless communication by IrDA is used, please set **UART Mode Select** in BIOS, **INTEGRATED PERIPHERAL** to **IrDA**.

IR: Pin Header, DIP 4-pin	Pin #	Signal Name
	1	+5V
	2	N/A
	3	IrRX
	4	GND
	5	IrTX

VGA: VGA Connector

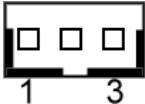
See chapter “External Interfaces”.

WOL: Wake On LAN Connector

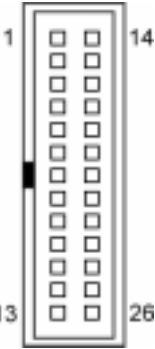
WOL: is a 3-pin header for the Wake On LAN function of the CPU card.



Wake On LAN will function properly only with an ATX power supply that provides 200mA standby current for the +5VSB voltage.

WOL: Boxheader, (shrouded), 3-pin	Pin #	Signal Name
	1	+5VSB
	2	GND
	3	Wake on LAN

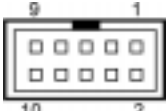
LPT1: Parallel Port Connector

LPT1: Boxheader, (shrouded), DIP 26-pin	Signal Name	Pin #	Pin #	Signal Name
 LPT1	–Strobe	1	14	–AutoFeed
	PD0, Data 0	2	15	–Error
	PD1, Data 1	3	16	–Initialize
	PD2, Data 2	4	17	–Select
	PD3, Data 3	5	18	GND
	PD4, Data 4	6	19	GND
	PD5, Data 5	7	20	GND
	PD6, Data 6	8	21	GND
	PD7, Data 7	9	22	GND
	–Acknowledge	10	23	GND
	Busy	11	24	GND
	Paper empty	12	25	GND
	–Select	13	26	NC

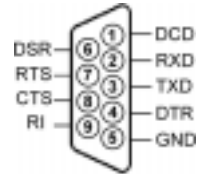
COM1, COM2 Serial Ports

COM1: the 10-pin boxheader is to be used with the supplied serial cable.

Pin assignment RS232:

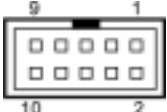
COM1: Boxheader, (shrouded), DIP 10-pin	RS232	
	Pin #	Signal Name
 <p>COM1</p>	1	DCD, Data carrier detect
	2	DSR, Data set ready
	3	RXD, Receive data
	4	RTS, Request to send
	5	TXD, Transmit data
	6	CTS, Clear to send
	7	DTR, Data terminal ready
	8	RI, Ring indicator
	9	GND, ground
	10	NC

Pining on the supplied cable connector:

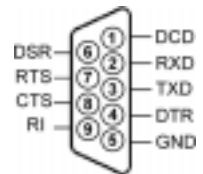


COM2: the 10-pin boxheader is to be used with the supplied serial cable. The interface can be configured as RS232, RS422 or RS485.

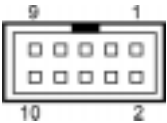
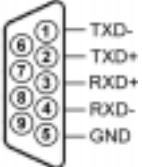
Pin assignment as RS232:

COM2: Boxheader, (shrouded), DIP 10-pin	RS232	
	Pin #	Signal Name
 <p>COM2</p>	1	DCD, Data carrier detect
	2	DSR, Data set ready
	3	RXD, Receive data
	4	RTS, Request to send
	5	TXD, Transmit data
	6	CTS, Clear to send
	7	DTR, Data terminal ready
	8	RI, Ring indicator
	9	GND, ground
	10	NC

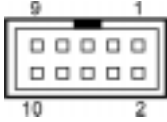
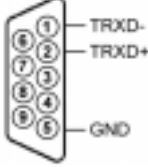
Pining on the supplied cable connector:



Pin assignment as RS422:

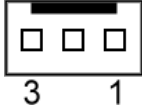
<div>COM2: Boxheader, (shrouded), DIP 10-pin</div> <div> COM2</div>	RS422	
	Pin #	Signal Name
	1	TXD-, Transmit data
	3	TXD+, Transmit data
	5	RXD+, Receive data
	7	RXD-, Receive data
	9	GND, ground
		<div>Pining on the supplied cable connector:</div> <div></div>

Pin assignment as RS485:

<div>COM2: Boxheader, (shrouded), DIP 10-pin</div> <div> COM2</div>	RS485	
	Pin #	Signal Name
	1	TXD-, Transmit/Receive data
	3	TXD+, Transmit/Receive data
	5	
	7	
	9	GND, ground
		<div>Pining on the supplied cable connector:</div> <div></div>

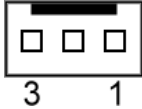
CPU Fan: CPU Fan Power Connector

It is a 3-pin header that allows the connection of the CPU fan. The CPU fan must be a 12V fan.

CPU Fan: Pin Header, 3-pin	Pin #	Signal Name
	1	GND
	2	+12V controlled
	3	Rotation

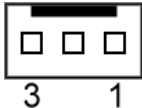
CHS Fan: Chassis Fan Power Connector

It is a 3-pin header that allows the connection of the System fan. The System fan must be a 12V fan.

CHS Fan: Pin Header, 3-pin	Pin #	Signal Name
	1	GND
	2	+12V
	3	Rotation


PWR Fan: Chassis Fan Power Connector

It is a 3-pin header that allows to connect the Chassis fan. The Chassis fan must be a 12V fan.

PWR Fan: Pin Header, 3-pin	Pin #	Signal Name
	1	GND
	2	+12V controlled
	3	Rotation

CF: CompactFlash™ Connector

The CompactFlash™ connector is located on the rear side of the PCI-951 board.

CompactFlash	Signal Name	Pin #	Pin #	Signal Name
 CF	GND	1	26	GND
	DO3	2	27	D11
	DO4	3	28	D12
	DO5	4	29	D13
	DO6	5	30	D14
	DO7	6	31	D15
	CSO	7	32	CS1
	GND	8	33	GND
	GND	9	34	IORD
	GND	10	35	IOWR
	GND	11	36	WE
	GND	12	37	IRQ25
	VCC	13	38	VCC
	GND	14	39	CSEL
	GND	15	40	NC
	GND	16	41	RESET
	GND	17	42	IORDY
	AO2	18	43	NC
	A01	19	44	VCC
	AO0	20	45	IDE-ACT
	DO0	21	46	connected to 39
	DO1	22	47	D8
	DO2	23	48	D9
	pulled down	24	49	D10
	GND	25	50	GND

Watchdog Timer Configuration

The function of the watchdog timer is to reset the system automatically and is defined by Winbond W83627HF chip. If the Watchdog timer is activated, the system could restart only when the Watchdog is not relocated within the installed time interval.



Please observe: the watchdog timer has a tolerance of 20% for its intervals.

For more information for the programming of the watchdog timer refer to the on-line manual of the Winbond chip W83627HF (www.winbond.com).

BIOS Configuration

This chapter describes the settings available in the Award BIOS for the PCI-951 board.

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel® Pentium® 4 and Celeron® processors in a standard IBM-AT compatible I/O system.

BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is activated.

Pressing the key immediately allows you to enter the Setup utility. If you are a little bit late pressing the key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press <DEL> to Enter Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various Setup functions and exit choices.



The changes will be adopted only, if „SAVE & EXIT“ is selected for quitting.

CMOS SETUP UTILITY-Copyright (C) 1984-2001



The fields selected by the user are coloured highlighted.

The keys (command keys) and their functions are indicated in a range at the lower edge of the menu.

Underneath the command keys border are information about the current selected menu function (coloured highlighted).



If your computer can not boot after you have made some Setup changes, exists the possibility to reload the functional settings. (vgl.)



We recommend to avoid changes of the chipset pre-settings (default). These pre-settings are carefully selected, in order to ensure the maximum efficiency with simultaneous reliability.

Standard CMOS Setup

The “Standard CMOS Setup” choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the board is already installed in a working system, you will not need to select this option.

You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

CMOS Setup Utility – Copyright (C) 1984-2001
Standard CMOS Features
AWARD BIOS INC.



At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.



If the memory is not completely recognised, please ensure that it correspond to the recommended specification.

Date

<i>Date:</i>	indicate the date of the device. If you change the date setting, enter the date in the format <i>mm:dd:yyyy</i> (month: day: year).		
	<i>Date settings:</i>	<i>Day:</i>	<i>Sun - Sat</i>
		<i>Month:</i>	<i>1 - 12</i>
		<i>Date:</i>	<i>1 - 31</i>
		<i>Year:</i>	<i>1999 - 2099</i>

Time

<i>Time:</i>	indicate the time of the device. If you change the time setting, enter the time in the format <i>hh:mm:ss</i> (hours: minutes: seconds)		
	<i>Time settings:</i>	<i>Hour:</i>	<i>00 - 23</i>
		<i>Minute:</i>	<i>00 - 59</i>
		<i>Second:</i>	<i>00 - 59</i>

IDE Primary / IDE Secondary

The onboard IDE connectors provide primary and pecondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the “Master” and the second is the “Slave”.

IDE HDD Autodetection

If you select this option, the parameters of the IDE devices are registered automatically.

IDE Primary / IDE Secondary

<i>None</i>	Set to <i>None</i> , if no IDE equipment is installed, or you remove the IDE device without replacing it.
<i>Auto</i>	If the hard disk supports this mode, the Setup menu reads the hard disk parameters from the disk itself. You do not need to select the parameters yourself. This will enable auto detection of your IDE drives and CD-ROM drive during POST.
<i>Manual</i>	You have to enter the parameters of the IDE devices manually. Please only use, if <i>Auto</i> does not work correctly



Some data may be lost, if you made changes of the already installed IDE devices subsequently.

<i>Capacity</i>	This entry (size) results automatically from the following data.
<i>CYLS:</i>	Number of cylinders
<i>HEAD:</i>	Number of read/write heads
<i>PRECOMP:</i>	Write pre-compensation cylinder
<i>LANDZ:</i>	Landing zone
<i>SECTOR:</i>	Number of sectors

Access MOD (only for IDE HDDs)

<i>CHS</i>	HD < 528MB
<i>LBA:</i>	HD > 528MB or different CF-devices
<i>Large:</i>	To use with MS-DOS only
<i>Auto:</i>	The optimal mode is selected by the BIOS automatically.



The specifications of your drive must match with the drive table. The hard disk will not work properly, if you enter incorrect information in these fields. If your hard disk drive type is not matched or listed, you can use *Manual* to define your own drive type manually. If you select the option *Manual*, the HDD referred information should be registered manually.

Drive A / Drive B

This field determines the type of the floppy disk drives, which are installed in your system.

The available settings are:

1.44MB - 3.5 in. 360KB - 5.25 in. 1.2MB - 5.25 in. 720KB - 3.5 in. 2.88MB – 3.5 in.	A 3.5" Floppy disk drive with 1.44MB is installed.
None	The floppy disk drive is not installed.

Video

This field allows you to select the type of the video card installed in your system. Available settings:

EGA/VGA(default)	For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Power up in 40 column mode (only for DOS).
CGA 80	Power up in 80 column mode (only for DOS)..
MONO	For Hercules or MDA adapters.

Halt On

This field specifies the errors which determine the interruption of the boot procedure.

<i>All errors (Default)</i>	The boot procedure stops, whenever the BIOS detects an error.
<i>No errors</i>	The boot procedure will be not halted for any error that may be detected.
<i>All, But Keyboard</i>	The boot procedure will not be halted for a keyboard error; it will stop for all other errors
<i>All, But Diskette</i>	The boot procedure will be not halted for a disk error; it will stop for all other errors.
<i>All, But Disk/Key</i>	The boot procedure will be not halted for a key- board or disk error; it will stop for all others.

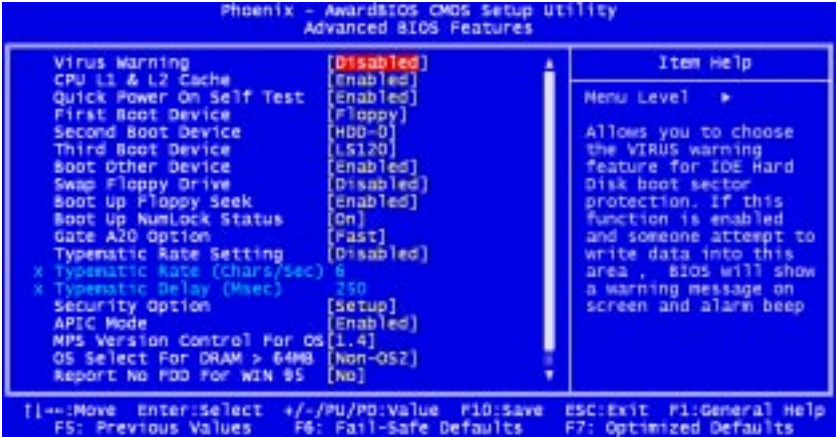


If the system stops because of an error, press the F1-key to continue the boot procedure. The system does not start in such a case independently.

Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

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Advanced BIOS Feature
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Virus Warning

This setting (when *Enabled*) protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program.

Default setting: *Disabled*.



Note: The message is not visible under graphic user surfaces such as Windows.

CPU L1 & L2 Cache

This setting allows you to enable or disable the Level-1 and Level-2 cache function.

<i>Enabled (Default):</i>	L1 and L2 Cash are enabled.
<i>Disabled</i>	L1 and L2 Cash are disabled.

Quick Power On Self Test

This field determines whether booting is to be shortened.

<i>Enabled (Default):</i>	Certain tests are not carried out during booting. This accelerates the system start-up.
<i>Disabled</i>	The complete system tests will be carried out during the POST.

First/ Second/ Third Boot Device

These fields specify the sequence in which the BIOS searches the drives of the system, to boot the operating system.

The available options include: *Floppy*, *LS120*, *HDD-0*, *SCSI*, *CDROM*, *HDD-1*, *HDD-2*, *HDD-3*, *ZIP 100*, *USB-FDD*, *USB-ZIP*, *USB- CDROM*, *USB- HDD*, *LAN* and *Disabled*.

Default settings:

<i>First Boot Device</i>	<i>Floppy</i>	Default
<i>Second Boot Device</i>	<i>HDD-0</i>	Default
<i>Third Boot Device</i>	<i>LS120</i>	Default

Boot Other Device

This setting allows you to boot the operating system from other devices other than the ones selected in the First/Second/Third Boot Device.

Default setting: *Enabled*.

Swap Floppy Drive

This field allows you to change the drive letters of the disc drives.

<i>Enabled</i> (Default):	Drive A: becomes B: and drive B becomes A.
<i>Disabled</i>	The drive letters are not changed.

Boot Up Floppy Seek

When *Enabled*, the BIOS will seek whether or not the floppy drive installed has 40 or 80 tracks.

360K type has 40 tracks while 760K, (1.2M and 1.44M) all have 80 tracks.

Default setting: *Enabled*.

Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system.

<i>On</i> (Default):	The number PAD of the keyboard functions in number mode.
<i>Off</i> :	The number PAD of the keyboard functions in cursor mode.

Gate A20 Option

This field allows you to select how Gate A20 is working. Gate A20 is a device used to address memory above 1 MB.

<i>Fast</i> (Default):	The access is made by the chip set.
<i>Normal</i> :	The access is made by the keyboard controller.

Typematic Rate Setting

This field allows you to specify the repetition rate of the keyboard.

<i>Enabled:</i>	A character sequence appears on the screen, as long as you keep the key pressed.
<i>Disabled (Default):</i>	When a key is held down continuously, only one indication appears on the screen.

Typematic Rate (Chars/Sec)

This field allows you to select, how quickly (characters/second) the keyboard entry (repetition of characters) is to take place.

<i>6 (Default):</i>	Six (6) Chars/Sec
<i>6 to 30</i>	6, 8, 10, 12, 15, 20, 24, 30 Chars/Sec

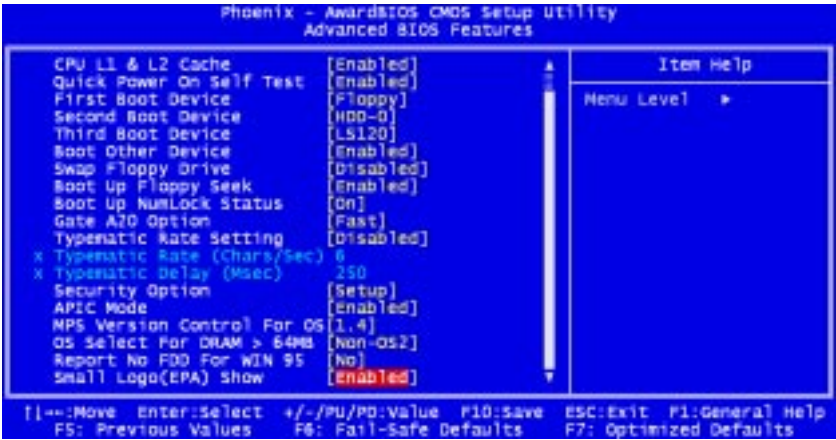
Typematic Delay (Msec)

These settings allow you to select the time interval for displaying the first and second characters.

By default, this setting is set to *250msec*.

<i>250 (Default):</i>	<i>250 Msek.</i>
<i>250-1000</i>	<i>250, 500, 750, 1000 Msek.</i>

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Advanced Chipset Feature Setup
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Security Option

This field allows you to limit the access to the System and Setup.
Available settings are:

Setup (Default):	The password is required only for the access to the BIOS.
System	The password is required each time when the computer boots up.



If the installed password is empty, then no inquiry is made.

APIC Mode

This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance with PC2001 design guide, the system is able to run in APIC mode.
Available settings:

Enabled (Default):	APIC mode will expand available IRQ resources for the system.
Disabled:	APIC is switched off.

MPS Version Control For OS

This field allows you to select which MPS (Multi-Processor Specification) version is used. You have to select the MPS version supported by your operating system. Available settings: *1.4* and *1.1*.
Default setting: *1.4*.

OS Select for DRAM > 64MB

This field determines whether the storage area over 64 MByte is to be administrated by the operating system OS/2. If is used the operating system OS/2 select the option *OS2* here, otherwise *Non-OS2*.
Default setting: *Non-OS2*.

Report No FDD For WIN 95

This field determines whether the BIOS should inform the operating system Windows 95 whether a floppy disc drive is present or not. This function avoids unnecessary waiting times under Windows 95. Available settings are *Yes* and *No*.

<i>Yes:</i>	Windows 95 should not look for a floppy disc drive if none is present.
<i>No (Default):</i>	Windows 95 should ascertain itself whether a floppy disc drive is present.

Small Logo (EPA) Show

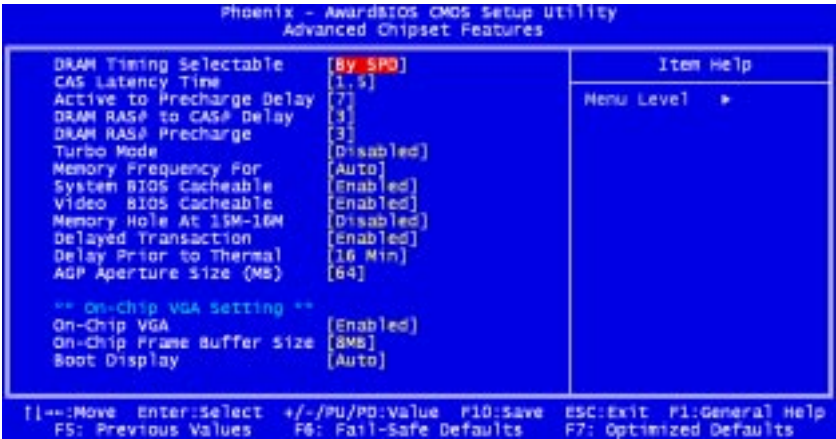
This option allows you to determine if the EPA Logo is to be indicated during the bootup on the screen.
Available settings are:

<i>Enabled (Default):</i>	Show the EPA screen logo.
<i>Disabled:</i>	No show EPA screen logo.

Advanced Chipset Features

This Setup menu controls the configuration of the board chipset.

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Advanced CHIPSET FEATURES
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DRAM Timing Selectable

This field allows you to select the timing of the DDR DRAM memory modules.
Available settings: *By SPD* and *Manual*.
Default setting: *By SPD*.

CAS Latency Time

This field allows you to select the latency between access time from the “Read” command of the memory controller to the time of the delivering the requested data. The manufacturer of this board sets this value, according to the installed DDR DRAM.
Do not change the values in this field, unless you change specifications of the installed DRAM or the installed CPU.
Available settings: 1.5, 2 and 2.5 .
Default setting: 1.5.

Activity to Precharge Delay

This setting controls the number of clock cycles for DRAM to be allowed to precharge from the active state. Available settings : 7, 6, and 5.

Default setting: 7. (Do not change the default setting)

DRAM RAS# to CAS# Delay

You can select RAS to CAS Delay time in CLKs of 2/2 or 3/3. The manufacturer of this board sets this value, according to the installed DDR DRAM. Do not change this value, unless you change specifications of the installed DRAM (DDR) or the installed CPU.

Available settings are: 2 and 3.

Default setting: 3.

DRAM RAS# Precharge

This field allows you to select how much time between two memory accesses passes. Available settings are 2 and 3.

Default setting: 3

Turbo Mode

This setting controls the DRAM running to Turbo mode or not.

Setting option: *Disabled* (default), *Enabled*.

Memory Frequency For

This field allows you to configure the clock frequency of the installed SDRAM.

Available settings: *Auto* (Default), *DDR 200*, *DDR 266*, *DDR 333*.

System BIOS Cacheable

The setting of *Enabled* allows caching of the system BIOS ROM at F000h-FFFFh, resulting in better system performance. This memory area can be buffered (in the internal Cache of the CPU). The accesses to the BIOS become faster.

Available settings are *Enabled* (Default) and *Disabled*.

Video BIOS Cacheable

The video BIOS occupies the range from C000:0 to maximally DFFF:0. This range can be buffered (in the internal Cache CPU). The accesses to the video BIOS become faster. Available settings are: *Enabled* (default) and *Disabled*.



The settings „Video BIOS Cacheable“ and „System BIOS Cacheable“ offer practically only under DOS an acceleration. Modern operating systems did not use the BIOS.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. Available settings are *Enabled* and *Disabled* (default).

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Settings options are *Enabled* (default) and *Disabled*. The compatibility to the PCI specification version 2.1 is only ensured, if the buffer is activated (*Enabled*).

Delay Prior to Thermal

When the CPU temperature reaches a factory preset level, a thermal monitoring mechanism will be enabled following the appropriate timing delay specified in this field. With the thermal monitoring enabled, clock modulation controlled by the processor's internal sensor is also activated to keep the processor within allowable temperature limit.

Available settings: *4 Min*, *8 Min*, *16 Min* (Default), *32 Min*.

AGP Aperture Size (MB)

The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. Available settings are *4M*, *8M*, *16M*, *32M*, *64M*, *128M* and *256M*. Default setting: *64M*.

On-Chip VGA

The available settings for the On-Chip VGA are *Enabled* and *Disabled*.

Default setting: *Enabled*.

On-Chip Frame Buffer Size

The available settings for the On-Chip Frame Buffer Size are *8MB* and *1MB*.

Default setting: *8MB*.

Boot Display

The available settings for the Boot Display are *Auto*, *CRT*, *TV* and *EFP*.

Default setting: *Auto*.

Integrated Peripherals

This option sets your hard disk configuration, mode and port.

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 INTEGRATED PERIPHERALS
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On-Chip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Available settings are *Enabled* (Default) and *Disabled*.

The setting *Enabled* is available for each channel separately.

IDE Primary/Secondary Master/Slave PIO

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.

The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. Available settings are: 0, 1, 2, 3, 4 and *Auto*. When *Auto* is selected, the BIOS will select the best available mode.

Default setting: *Auto*.

IDE Primary/Secondary Master/Slave UDMA

These fields allow you to improve the disk I/O through the Ultra DMA feature. The available settings are *Auto* and *Disabled*.

Default setting: *Auto*

USB Controller

The available settings for this field are *Enabled* and *Disabled*.

Default setting: *Enabled*.

USB 2.0 Controller

The available settings for this field are *Enabled* and *Disabled*.

Default setting: *Enabled*.

USB Keyboard Support

This field allows you to switch on or off the support for USB keyboards (for operating systems without USB supporting).

Available settings are *Enabled* and *Disabled*.

Default setting: *Disabled*.



This function should not be activated, if the operating system provides USB support.

AC97 Audio

The available settings for this field are *Auto* and *Disabled*.

Default setting: *Auto*.

Init Display First

This field allows you to select the VGA card that is to be initialised first. Available choices: PCI-slot or AGP card.

Available settings are *Onboard/AGP* und *PCI Slot*.

Default setting: *Onboard/AGP*.

Onboard LAN Controller

The field determines whether the onboard LAN controller will be activated.

Available settings are *Enabled* and *Disabled*.

Default setting: *Enabled*.

IDE HDD Block Mode

If your hard disk supports the block mode, select *Enabled* for the automatic determination of the number of the blocks per request. Several sectors can be at the same time read/written. The data transfer rate will be increased.

Available settings are *Enabled* and *Disabled*.

Default setting: *Enabled*.

Onboard FDC Controller

This field allows you to activate or to deactivate the on board integrated floppy disk controller.

<i>Enabled</i> (Default):	The floppy disk controller of the board is used.
<i>Disabled</i>	If a supplementary floppy disk controller is used or the system is not equipped with a floppy disk drive.

Onboard Serial Port 1&2

These fields allow you to select the onboard serial ports and their addresses.

Available settings are:

	Default	Available settings (without default setting)
Serial Port 1	3F8/IRQ4	2F8/IRQ3 / 3E8/IRQ4 / 2E8/IRQ3 / Disabled / Auto
Serial Port 2	2F8/IRQ3	3F8/IRQ4 / 3E8/IRQ4 / 2E8/IRQ3 / Disabled / Auto



UART Mode Select

This field determines the UART mode in your computer.

Available settings are *Normal*, *IrDA* and *ASKIR*.

Default setting: *Normal*.

RxD, Tx0 Active

The available settings for this field are *Hi,Lo* / *Lo,Hi* / *Lo,Lo* / *Hi,Hi*.

Default setting: *Hi,Lo*.

IR Transmission Delay

By default, this field is set to *Enabled*.

UR2 Duplex Mode

The available settings for this field are *Half* (default) and *Full*.

Use IR Pins

The available settings for this field are *IR-Rx2Tx2* (default) and *RxD2, Tx0D2*.



The setting depends on the used infrared transmitter and the used end device.

Onboard Parallel Port

This field allows you to select the resources (I/O address and IRQ) for the onboard parallel port.

Available settings are:

	Default	Available settings (without default setting)
Parallel Port	378/IRQ7	278/IRQ5 / 3BC/IRQ7 / Disabled



The ECP or EPP mode is not supported, if the setting option is 3BC.

Parallel Port Mode

This field allows you to select the modes of the parallel port.

<i>SPP</i>	Normal Printer Port
<i>EPP</i>	Enhanced Parallel Port
<i>ECP</i>	Extended Capabilities Port
<i>ECP+EPP</i>	Enhanced Parallel and Extended Capabilities Port
<i>Normal</i>	Normal Parallel Port

ECP Mode Select

The available settings for this field are *EPP 1.7* and *EPP 1.9*.

Default setting: *EPP 1.7*.

ECP Mode Use DMA

The available settings for this field are 3 and 1.

Default setting: 3.

PWRON After PWR-Fail

Depending on this setting, the system behaves differently, if the power connection is restored after a power failure or interrupt occurs.

The available settings for this field are *Off*, *On*, *Former-Sts*.

Default setting: *Off*.

Power Management Setup

The Power Management Setup allows you to use energy saving functions for your system effectively. It will shut down the hard disk and turn off video controller after a period of inactivity.

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POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.



ACPI Function

This field allows you to enable or to disable the Advanced Configuration Power Management (ACPI) function.

The available settings are *Enabled* and *Disabled*.

Default setting: *Enabled*.

Power Management

This field allows you to select the type of power saving management modes. Available settings for this field are:

<i>User Define</i> (Default)	Each of the ranges is from 1 min. to 1h. Exception: the ranges can be set for the HDD from 1 min. to 15 min.
<i>Min. Power Saving</i>	Minimum power management.
<i>Max. Power Saving</i>	Maximum power management.



In order to ensure the CPU overheat protection, the *Power Management* field should not be set to *Disabled*; (the setting *Disabled* is not available).

Video Off Method

This field defines the Video Off features. The available settings are:

<i>DPMS</i>	Allows the BIOS to control the video card if it supports the DPMS feature.
<i>Blank Screen</i>	This option only writes blanks to the video buffer.
<i>V/H SYNC+Blank</i>	Video off function depend on display's H-SYNC & V-SYNC signal.

Video Off In Suspend

This field determines whether the monitor will be switched into the power save mode or not.

Available settings are: *Yes* (Default) and *No*.

Suspend Type

Available settings for this field are: *Stop Grant*, *PwrOn Suspend*.

Default setting: *Stop Grant*.

Modem Use IRQ

This field names the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always wakes up the system.

Available settings are: *NA*, 3 (Default), 4, 5, 7, 9, 10, 11.

Suspend Mode

When *Enabled*, after the set time of system inactivity all devices, except the CPU, will be shut off.

Available settings are: *Enabled* and *Disabled* (Default).

HDD Power Down

This field determines whether the hard disk will be powered down or not.

Available settings are: *Disabled* (Default), *1Min*, *2Min*, *3Min*, *4Min*, *5Min*, *6Min*, *7Min*.

After the set time (Min. = minutes) of system inactivity, the hard disk drive will be powered down.

Default setting: *Disabled* (The system will be not powered down the hard disk).

Soft-Off by PWR-BTTN

This field defines the power-off mode when using an ATX power supply.

The available settings are *Instant Off* and *Delay 4 sec*.

Default setting: *Instant-Off*.

The instant-Off mode allows powering off immediately upon pressing the power button. In the *Delay 4 Sec.* mode, the system powers off when the power button is pressed for more than four seconds or places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity (see next field) when pressed for less than 4 seconds.

CPU THRM-Throttling

This field allows you to reduce the CPU internal working frequency.

Available settings are: *12,5 %*, *25%*, *37,5%*, *50%*, *62,5%*, *75%*, *87,5%*.

(e.g.: for a set value of 12%, the CPU working frequency will be stopped to 12%.)

Default setting: *50.0 %*.

Wake-Up by PCI Card & Power On by Ring

These fields specify whether the system will be waked up from power saving modes, when activity or input signal of the specified hardware peripheral or component is detected.

The available settings are *Enabled* und *Disabled*.

Default setting: *Enabled*.



To use the function “*Wake Up On Ring*” or “*Wake Up On LAN*” you have to install a modem/LAN card, that supports the “power on” function.

Resume by Alarm

The available settings are *Enabled* and *Disabled* (Default).

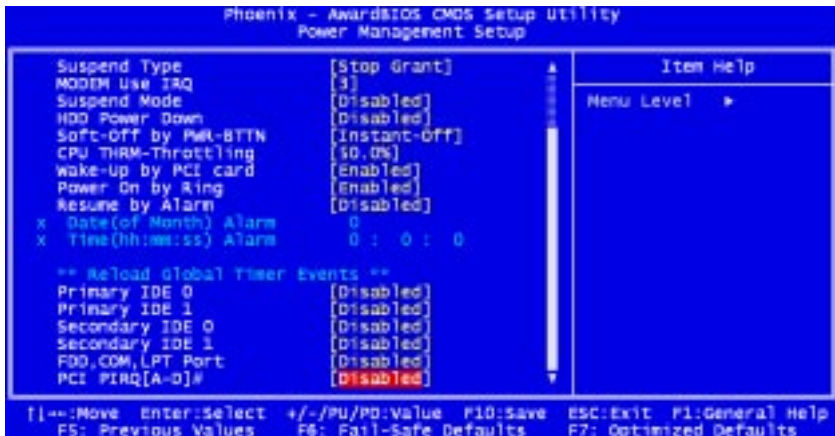
This field allows you to enable or to disable the resumption of the system operation. When *Enabled*, the user can set the *Date Alarm* and *Time Alarm*.

	Default	Available settings
<i>Date (of Month) Alarm</i>	0	0-31
<i>Time (HH:MM:SS:) Alarm</i>	00:00:00	00-23 / 00-59 / 00-59

Reload Global Timer Events

The HDD, FDD, COM, LPT Ports, and PCI PIRQ are I/O events which can prevent the system from entering a power saving mode or can wake up the system from such a mode. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

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POWER MANAGEMENT SETUP
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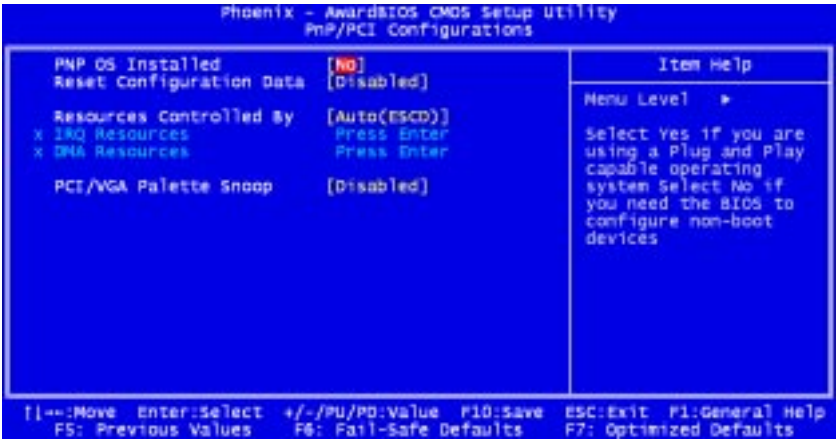
PNP/PCI Configuration

This option configures the PCI bus system and the Plug & Play function.



Change of the default settings in this menu may only carried out by very experienced users. Incorrect settings can cause malfunctions or damage of the board.

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PNP/PCI CONFIGURATION
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PNP OS Installed

This field determines the Plug&Play function. Plug&Play means that added components are automatically recognised and installed if they support automatic recognition.

The available settings are No (Default) and Yes.

Yes:	The operating system assumes part of the Plug&Play functions. This setting should only be selected if the operating system supports Plug&Play (e. g. Windows 95 or higher).
No: (Default)	The system BIOS assumes the recognition of the components and assigns the resources.

Reset Configuration Data

This field determines whether the configuration data are newly initiated (reset) when the device is started.

<i>Disabled</i> (Default):	The installed components and drives are initiated with the existing configuration data. There is no updating when the device is started.
<i>Enabled:</i>	After the device is started the old configuration data are reset. The current configuration data are registered by the Plug&Play function. The installed components and drives are initiated with these data.

Resources Controlled by

This field determines by whom the system resources are to be administrated. This PnP BIOS can configure all of the boot and PnP compatible devices automatically. However, this capability needs you to use a PnP operating system such as Windows 95.

Available settings are: *Auto* and *Manual*.

<i>Auto(ESCD)</i> (Default):	The BIOS administrates the resources automatically.
<i>Manual</i>	The user determines the resources assignment.

IRQ Resources/ DMA Resources

To configure the IRQ Resources and the DMA Resources, these *Resources Controlled By* field should be set to *Manual*.

Available settings are: *PCI/ISA PnP* (Default) and *Legacy ISA*.

```

IRQ-3 assigned to [PCI/ISA PnP]
IRQ-4 assigned to [PCI/ISA PnP]
IRQ-5 assigned to [PCI/ISA PnP]
IRQ-7 assigned to [PCI/ISA PnP]
IRQ-9 assigned to [PCI/ISA PnP]
IRQ-10 assigned to [PCI/ISA PnP]
IRQ-11 assigned to [PCI/ISA PnP]
IRQ-12 assigned to [PCI/ISA PnP]
IRQ-14 assigned to [PCI/ISA PnP]
IRQ-15 assigned to [PCI/ISA PnP]

```

```

DMA-0 assigned to [PCI/ISA PnP]
DMA-1 assigned to [PCI/ISA PnP]
DMA-3 assigned to [PCI/ISA PnP]
DMA-5 assigned to [PCI/ISA PnP]
DMA-6 assigned to [PCI/ISA PnP]
DMA-7 assigned to [PCI/ISA PnP]

```

PCI/ VGA Palette Snoop

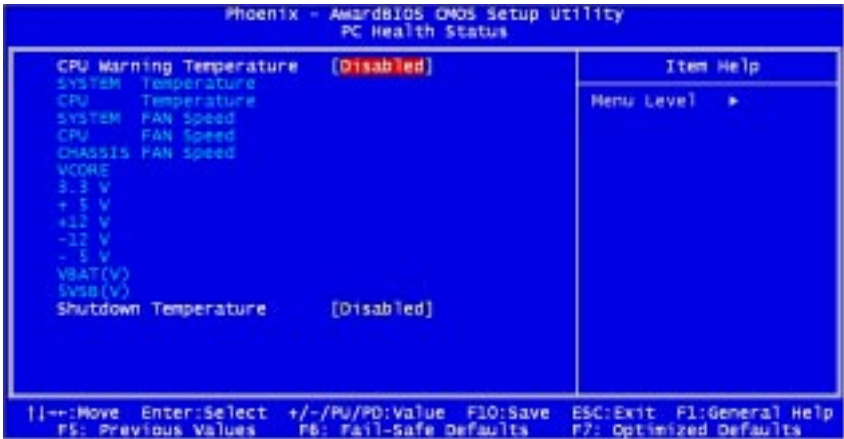
The available settings are *Enabled* and *Disabled*.

Leave this field at *Disabled*.

PC Health Status

This section shows the states of the CPU, fans, warning for overall system status.

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PC Health Status
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CPU Warning Temperature

The available settings are *Disabled* (Default), *50°C (122°F)*, *53°C (127°F)*, *56°C (133°F)*, *60°C (140°F)*, *63°C (145°F)*, *66°C (151°F)* und *70°C (158°F)*.

When *Enabled*, you can set a temperature limit value for the temperature monitoring of the CPU. The system will warn the user, when the CPU temperature has reached the set temperature value.

Temperature/ Fan Speed/ Voltages

These fields allow you to observe the parameters of the hardware monitoring function feature of the system. The values are read-only values for the monitoring of the system and show the PC health status.

Shutdown Temperature

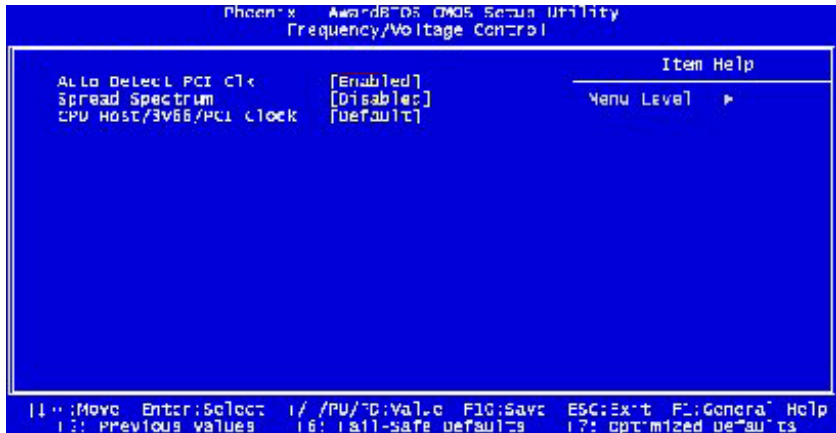
The Available settings are *Disabled* (Default), *60°C (140°F)*, *65°C (149°F)*, *70°C (158°F)* und *75°C (167°F)*.

This field allows you to set the *Shutdown Temperature* level for the processor. The system will be shut down, when the processor has reached the set temperature.

Frequency/ Voltage Control

This section allows you to set the CPU Frequency/ Voltage Control.

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Frequency / Voltage Control
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Auto Detect PCI Clk

This field allows you to enable or to disable auto detect PCI Clock.

Available settings are: *Enabled* (Default) and *Disabled*.

Spread Spectrum

This field allows you to set the CPU Clock / Spread Spectrum.

The setting *Enable* is recommended for low EMI radiation.

Available settings are: *Enabled* and *Disabled* (Default).

CPU Host/ 3V66/ PCI Clock

The standard setting for this field is *Default*. All other settings affect negatively the stability of system and are not recommended to be used.

Load Fail-Safe Defaults

By this option the system can reload all default settings, which are permanently stored in the BIOS-ROM.

These settings are not the optimised default settings (manufacturing defaults) for your system, but can be used, if after changes, the system does not run reliably.

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Load Fail-Safe Defaults Setup Utility
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Load Optimized Defaults

This option allows you to load the default values of your system configuration. These default settings (manufacturing settings) are optimal and enable all high performance features.

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Load Optimized Defaults Setup Utility

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Set Supervisor / User Password

These two options set the system password. *Supervisor Password* sets a password that will be used to protect the “System” and the “Setup utility”. Starting of the operating system as well as changes in the BIOS Setup require the enter of this password.

User Password sets a password that will be used exclusively on the system. Only starting of the operating system requires the enter of this password.

To specify a password, highlight the type you want and press <Enter>.

The *Enter Password:* message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled.

See also subsection “Security Option”, chapter “Advanced BIOS Features”.

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Set Supervisor / User Password Utility
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Save & Exit Setup

This option allows you to determine whether to accept the modifications or not. If you type “Y”, you will quit the Setup utility and save all changes into the CMOS memory. If you type “N”, you will return to Setup utility.

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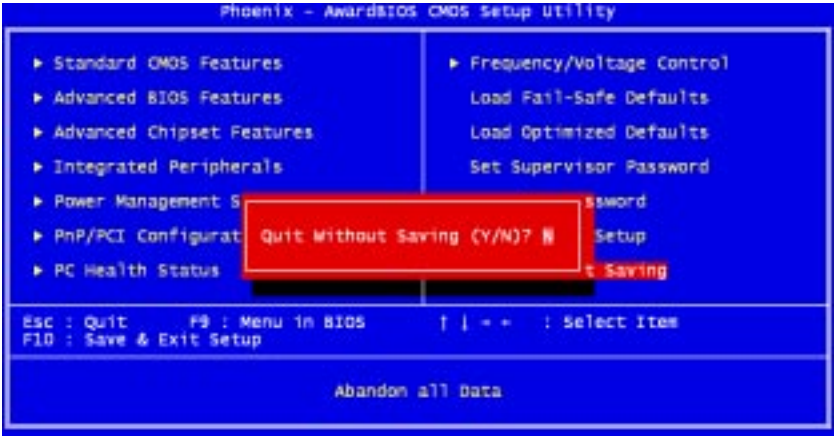
Save & Exit Setup Utility
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Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return you to Setup utility.

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Exit Without Saving Utility
AWARD SOFTWARE INC.



Resources

I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses, which also becomes the identity of the device. There is a total of 1K port address space available for ISA devices. The following table lists the I/O port addresses used for the standard settings of the PCI-951 board.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
278 - 27F	Parallel Port #2(LPT2)
2F8h - 2FFh	Serial Port #2(COM2)
2B0 - 2DF	Graphics adapter Controller
378h - 3FFh	Parallel Port #1(LPT1)
360 - 36F	Network Ports
3B0 - 3BF	Monochrome & Printer adapter
3C0 - 3CF	EGA adapter
3D0 - 3DF	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

Interrupt Request Lines (IRQ)

There are a total of 15 IRQ lines available on the Industrial CPU Card. Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used for the standard settings of the PCI-951 board.

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Parallel Port #2
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Software Redirected to Int 0Ah
IRQ10	Reserved
IRQ11	Reserved
IRQ12	Reserved
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE

Intel® 845GV Chipset Driver Installation

The Intel®845GVChipset driver comes in a driver CD with the package. This chapter provides information to install the driver for the Intel®845GVChipset. Please follow the instructions set forth in this chapter carefully.



Please note that the Intel® 845GV Chipset driver must be installed in your system first, before you could proceed to install the relevant drivers.

The following item is covered in this chapter:

- ☐ Installing the Intel® 845GV Chipset Driver for Windows 2000, XP

Installing the Intel® 845GV Chipset Driver for Windows 2000, XP

The following section describes the Intel® 845GV Chipset driver installation procedures for Windows 2000 and Windows XP.

Step 1: Insert driver CD into CD-ROM.

Step 2: Click **Intel Chipset**.

Step 3: Click **Intel Chipset for all type**.

Step 4: Click **Next**.

Step 5: Click **Yes**.

Step 6: Click **Next**.

Step 7: Click **Finish**.

VGA Driver Installation

This chapter provides information to install VGA drivers. This driver comes on the driver CD with the package. Please follow the instructions set forth in this chapter carefully. Please note that there must be relevant software installed in your system before you could proceed to install the VGA drivers.



Please observe, that for the installation of the VGA driver, the Intel® 845GV chipset driver should be already installed.

The following item is covered in this chapter:

- ❑ Installing VGA Driver for Windows 2000, XP

Installing VGA Driver for Windows 2000, XP

The following section describes the VGA driver installation procedures for Windows 98SE, Windows 2000, Windows XP.

Step 1: Insert the driver CD into CD-ROM.

Step 2: Click **VGA Device**.

Step 3: Click **Intel-845GV/ GL VGA Driver**.

Step 4: Click **Next**.

Step 5: Click **Next**.

Step 6: Click **Yes**.

Step 7: Click **Finish**. You must restart your computer now.

Audio Driver Installation

This chapter provides information to install the AC'97 CODEC Audio Driver. The driver is included on the supplied driver CD.

Please follow the instructions set forth in this chapter carefully.



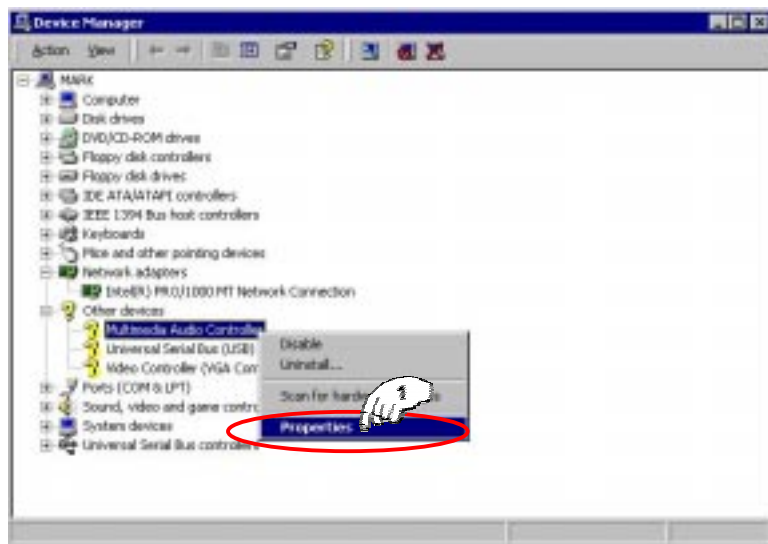
Please observe, that for the installation of the Audio driver, the Intel® 845GV chipset driver should be already installed.

The following items are covered in this chapter:

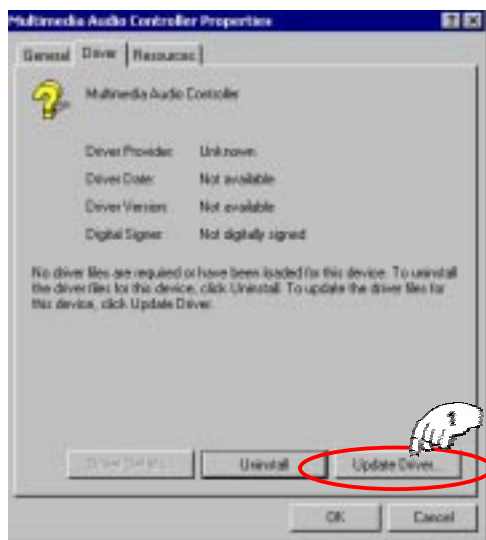
- ☐ Installing Audio Driver for Windows 2000
- ☐ Installing Audio Driver for Windows XP

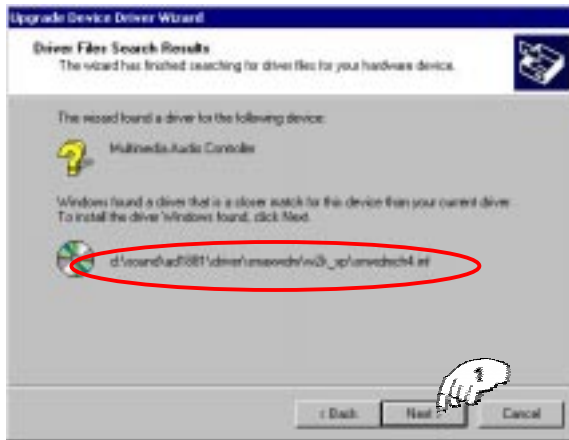
Installing Audio Driver for Windows 2000

Step 1:



Step 2:



Step 3:**Step 4:**

Step 5:



Installing Audio Driver for Windows XP

Step 1: Insert driver CD into CD-ROM ⇒ **Sound Device**.

Step 2: Click **Analog AD188X AC97 Codec Sound**.

Step 3: Click **Next**.

Step 4:



Step 5: Click **Finish**. You must restart your computer now.

LAN Driver Installation

This chapter describes the LAN driver installation of the onboard Intel® 82551QM LAN controller.

The following items are covered in this chapter:

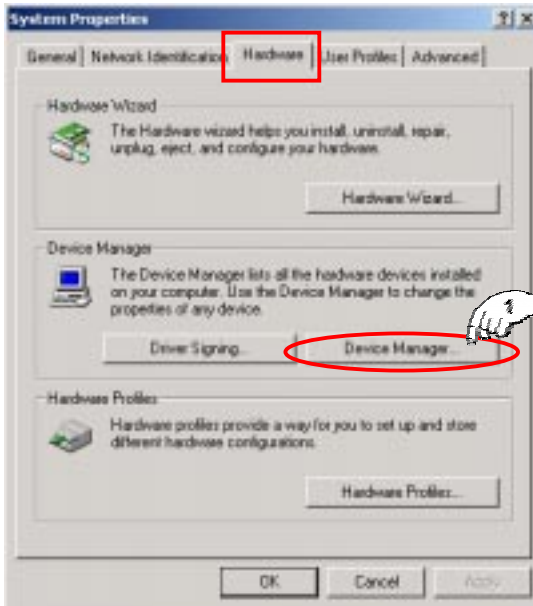
- ☐ Installing LAN Driver for Windows 2000
- ☐ Installing LAN Driver for Windows XP

Installing LAN Driver for Windows 2000

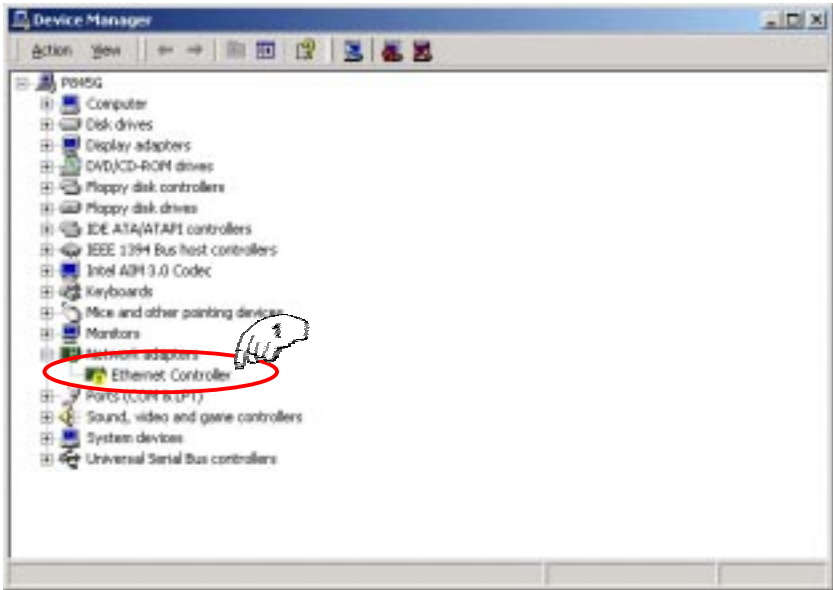
Step 1: Click **Start** ⇒ **Settings** ⇒ **Control Panel**.

Step 2: Double click **System**.

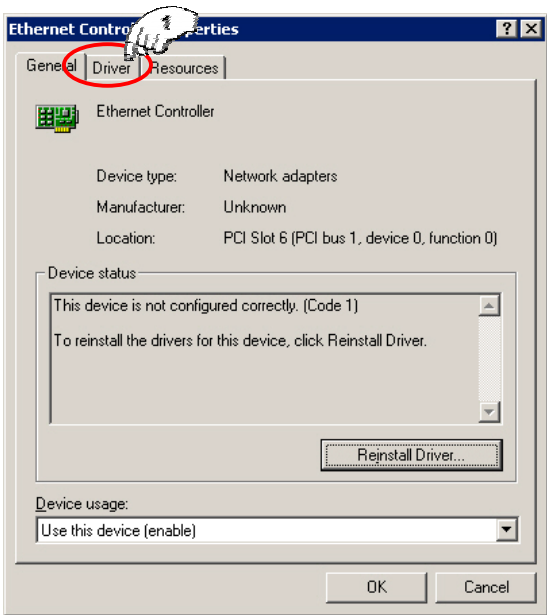
Step 3:

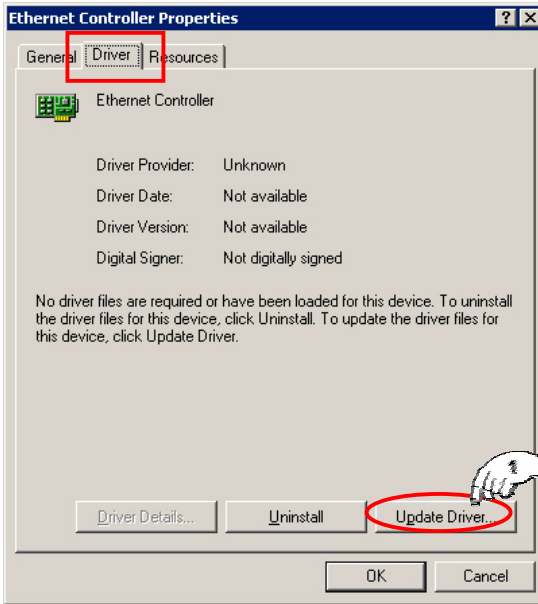
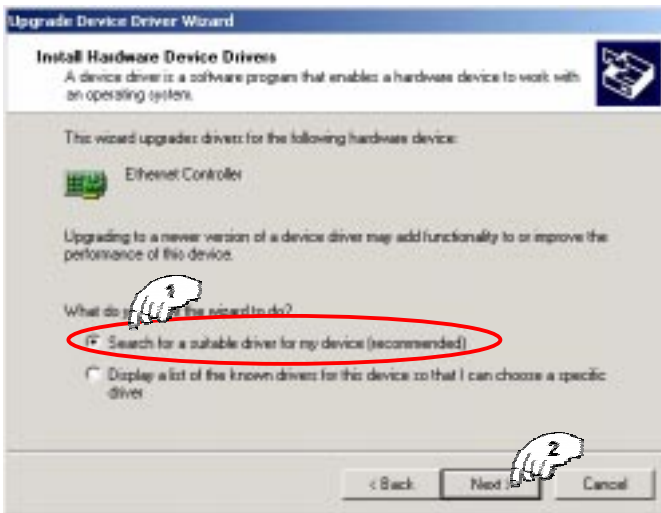


Step 4:

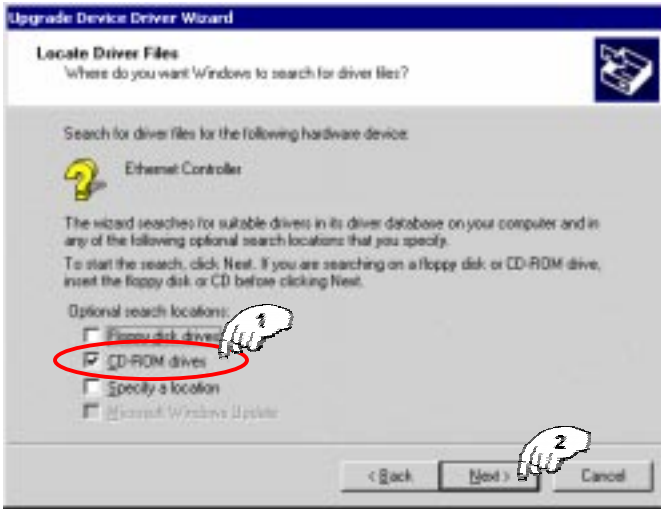


Step 5:

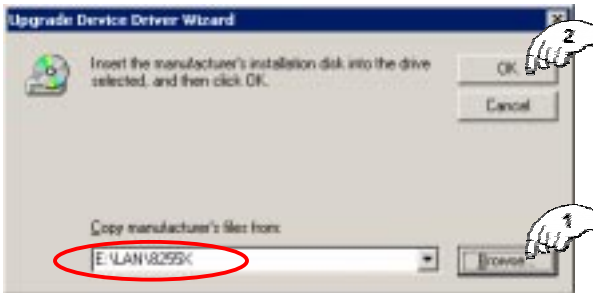


Step 6:**Step 7: Click *Next*.****Step 8:**

Step 9:



Step 10:



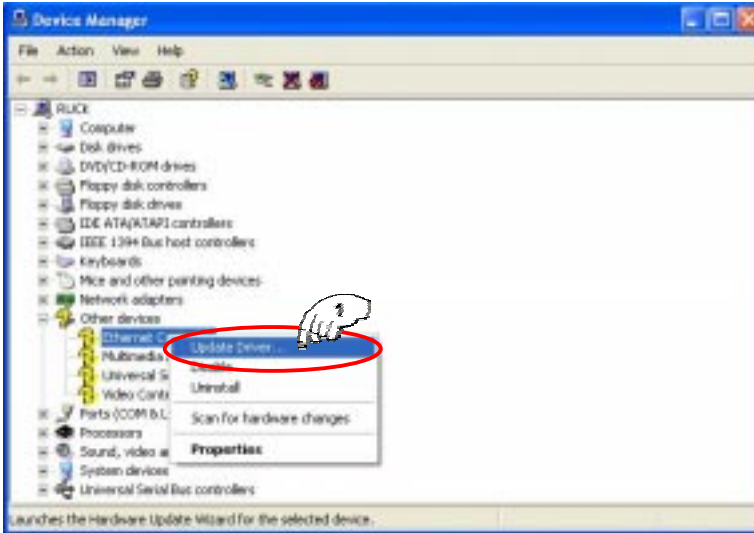
Step 11: Click *Next*.

Step 12:

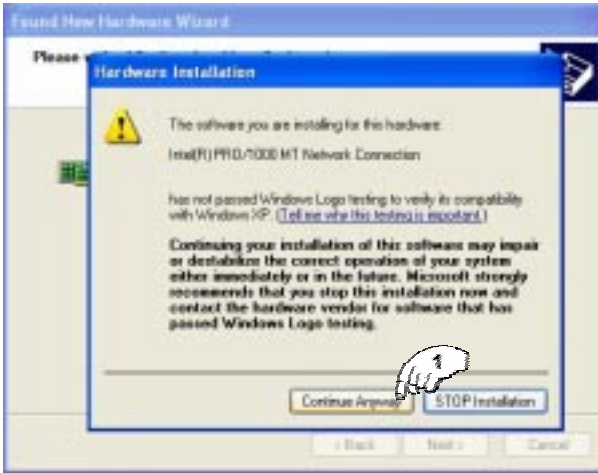
Step 13: Click ***Finish***. You must restart your computer now.

Installing LAN Driver for Windows XP

Step 1:



Step 2:



USB 2.0 Driver Installation

This chapter provides information for installing the USB 2.0 driver. The driver is included on the supplied driver CD.

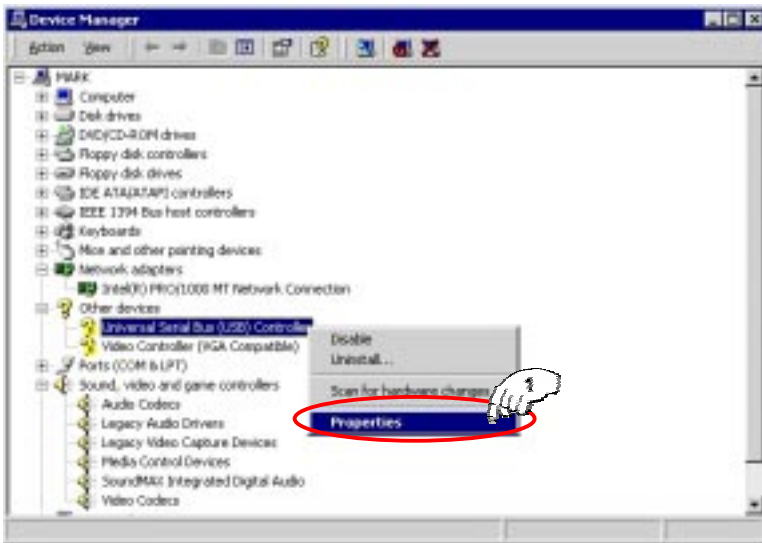
Please follow the instructions set forth in this chapter carefully.

The following items are covered in this chapter:

- ❑ Installing USB 2.0 Driver for Windows 2000
- ❑ Installing USB 2.0 Driver for Windows XP

Installing USB 2.0 Driver for Windows 2000

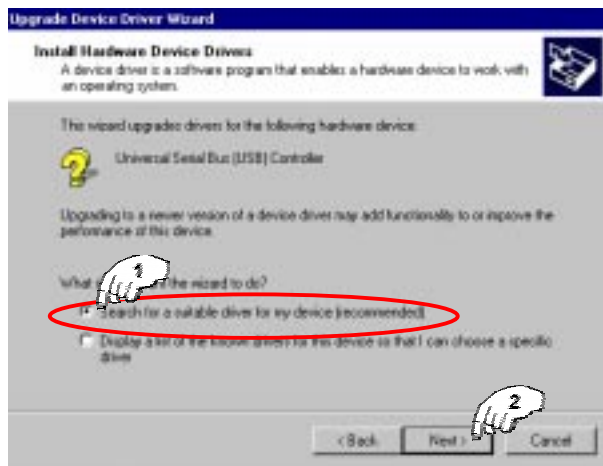
Step 1:

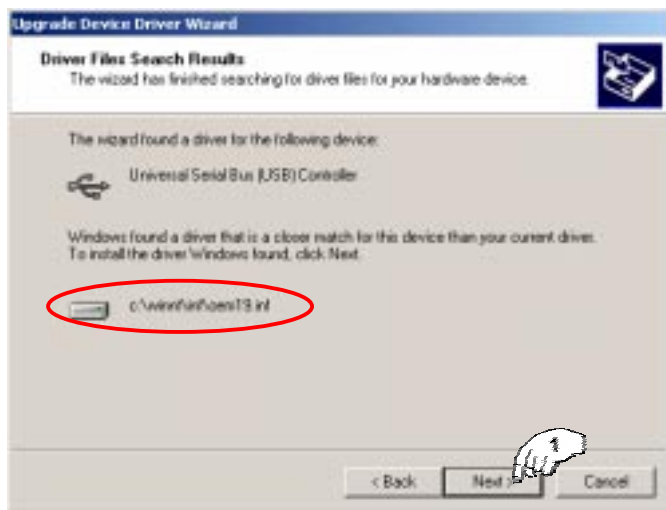
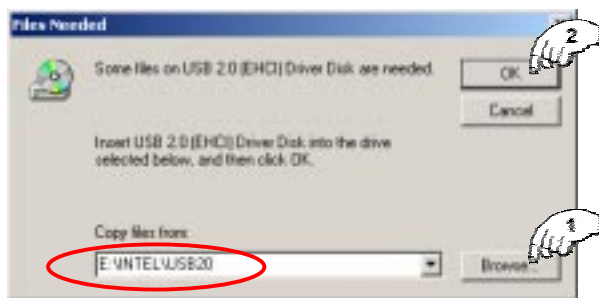


Step 2:



Step 3:



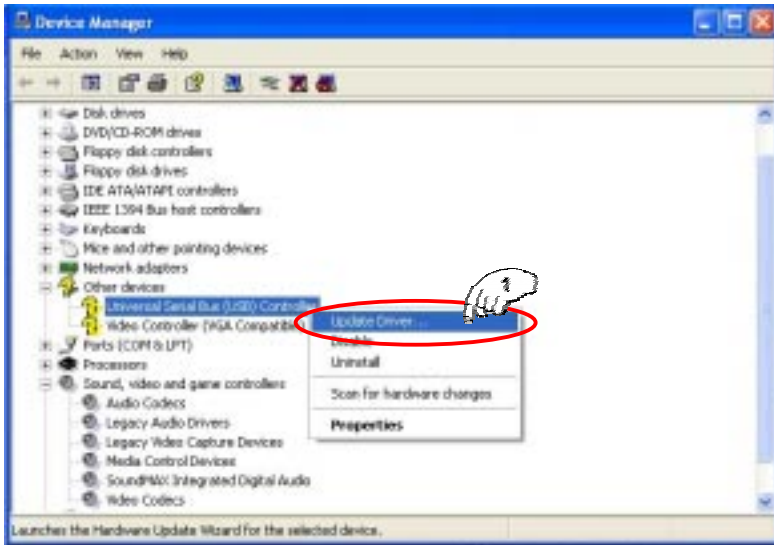
Step 4:**Step 5:**

Step 6:



Installing USB 2.0 Driver for Windows XP

Step 1:



Step 2:



Step 3:



Step 4:



Main Specifications

PCI-951	Main Specification
Processor	Intel® Pentium® 4 CPU or Celeron® For CPU frequency, please refer to the actually data sheet on the web site: www.kontron.com Socket 478 400/533MHz FSB (Front Side Bus)
Memory	2x 184-pin non-ECC DDR DIMMs for up to 2GB of 200MHz or 266MHz DDR SDRAM (PC1600/PC2100)
Cache	8-KB Level 1 512-KB or 256-KB Level 2
Chipset	Intel® 845GV with integrated graphic controller Intel® 82801DB (ICH4)
LPC I/O	Winbond W83627HF
PCI to ISA Bridge	ITE IT8888F
BIOS	Award BIOS PnP FWH 4Mbit Flash DMI BIOS support
Board Type	PICMG 1.0 standards
Ethernet	1x ICH4 with 82562ET 1x 82551QM
Interfaces Connectors Expansion sockets	External connectors (on the board bracket) 1x combined PS/2 (keyboard and mouse) 1x VGA 2x LAN Onboard Connectors: 2x FDD 4x USB (Vers. 2.0) with cable 2x IDE 1x IrDA 1x CompactFlash Socket™ (on the rear side) 1x DVI with optional adapter card 1x keyboard and mouse connector

The table continued on the following page.

	1x LPT1 Parallel Port 2x COM Serial Port compatible with: COM1 as RS232 COM2 as RS232 / RS422 / RS485 1x CPU fan power connector 2x Chassis fan power connector 1x Multifunction connector: PowerLED and Keylock ATX Power ON Switch Reset Switch Speaker SMI / Hardware Switch alternative connector for Power LED Hard Disk Drive LED
Power supply	Battery socket and lithium battery 3.0 V for RTC Input: ATX 12V
Operating systems	Windows 2000®, Windows XP®
Dimensions	338mm x 122mm (13.307" x 4.803")
Operating Temp.	0°C to 50°C (32°F to 122°F)
Storage Temp.	-25°C to +65°C (-13°F to 149°F)
Relative Humidity	5% to 95%
Weight:	0.450kg (0.992 lbs) (without CPU fan)

Electrical Specifications

Board Version	Type of the external PSU	Inputs	
PCI-951 Board	ATX 12V PSU by use of the supplied ATX adapter cable	PW1	+3:3V, +5V
		PW2	+12V
		J6	+5VSB
		J8	-5V, -12V

Power Specification

Input	Input Peak Current
PW2: +12V	10A
PW1: +3V3	6A
PW1: +5V	1A
J6: +5VSB	1A
J8: -5V	negligible
J8: -12V	negligible

CE-Directives, Standards

CE -Directives	
Low Voltage directive (Electrical Safety)	73/23/EEC
EMC Directive	89/336/EEC

Electrical Safety	Standards
	EN 60950, 3 rd edition IEC 60950, 3 rd edition

EMC	Standards
	EN 50081-1/-2 (emission) EN 50082-1, EN 61000-6-2 (immunity) EN 55022/ A: 1994 (CISPR22) FCC 47 CFR Part 15, Class A

Technical Support

For any technical questions, please contact our Technical Support department.

German headquarter Hotline:

TEL: (+49) 8165-77 112

FAX: (+49) 8165-77 110

E-mail: techsup@kontron.com

Make sure you have the following on hand when you call:

- the unit part number (P/No #),
- and the serial number (S/No #) of the defective unit (provide the serial number found on the label, placed on the rear side of the board).

Be ready to explain the nature of your problem to the service technician.

If you have any questions about Kontron Embedded Computers or our products and services, you may reach us at the aforementioned numbers, or at :
www.kontron.com or by writing to:

Kontron Embedded Computers GmbH

Oskar von Miller-Str. 1

85386 Eching near Munich

Germany

Returning Defective Merchandise

Before returning any merchandise please do the following if your Kontron product malfunctions:

1. Contact our Service and request an RMA number (Return Material Authorization) by :
Fax: (+49) 8165-77 311
E-mail: service@kontron.com
2. Make sure that you receive an RMA number from Kontron Embedded Computers-Service before returning any merchandise. Clearly write or mark this number on the outside of the package you are returning.
3. Describe the device failure behavior as precisely as possible.
4. Include the name and telephone number of a person whom we can contact for further explanations if necessary when returning goods. Where applicable, always include all duty papers and invoice(s) associated with the item(s) in question.
5. When returning a Kontron Embedded Computers unit:
 - Ensure that the unit is packed in the original box.
 - include a copy of the RMA form.